System for the study of pulsed ...

to a steepness of 10 a/10^{-9} sec), while the pulse duration is $40 \cdot 10^{-9}$ sec. The current in the pulse may amount up to 60 a. A part of the main pulse led through the delay line was used instead of a second generator leading the film back to the ground state prior to each working pulse. It is thereby shifted by the required time interval with respect to the main pulse. The magnetizing winding of the specimen is connected to the circuit of the thyratron cathode. The "back-leading" pulse is received through a 28.7 m long PK-6 (RK-6) cable with resistor, and is transferred to the other winding of the specimen. Due to the great cable length, the "back-leading" pulse is delayed by $140 \cdot 10^{-9}$ sec with respect to the main pulse. The signals were observed with the aid of an N9-4 (I0-4) oscilloscope brought up-to-date with the following features: (1) the 13Л037 (13L037) cathode-ray tube was replaced by one of the type 13Л03 (13L03). (2) the minimum scanning time was reduced from 1 to 0.2 μsec. Calibration was done by the sine curve provided by the LMS-551 high-frequency generator. The secondary winding of the specimen consists of two halves differentially wound to each other. It was wound in the form of an 8 over two halves of the core. A very thin wire with a high resistance was used for the winding (180 ohms m^{-1}). The primary winding is

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System for the study of pulsed...

wound over the core at a distance of 5 mm from the secondary winding. The core prepared in this way was placed in a copper shield during the experiments. The shield dimensions corresponded to the relation $D_S/D_W = 3$ (D_W - diameter of winding; D_S - diameter of shield). An 80 μ thick disk made of cold-rolled ХВП (KhVP) steel 15 mm in diameter was placed into the core, and the magnetic reversal pulse was recorded. The pulse was transmitted from the secondary winding (4 turns) directly onto the plates of IO-4 oscilloscope. The magnetic reversal pulse of a very small toroid with an inner diameter of 0.9 mm and an outer diameter of 1.5 mm, is considerable and almost reaches beyond the whole oscilloscope screen. Film pulses must be first amplified with the aid of a broad-band amplifier to the type УР-4 (UR-4) or the like. There are 5 figures and 3 Soviet-bloc references.

ASSOCIATION: Kafedra obshchey fiziki Fizicheskogo fakul'teta Moskovskogo gos. universiteta im. M. V. Lomonosova (Department of General Physics of the Physics Division, Moscow State University imeni M. V. Lomonosov)

34224
S/181/62/004/002/007/03[illegible]
B102/B138

24,2200 (1147,1137,1164)

AUTHORS: Telesnin, R. V., Al'meneva, D. V., and Pogozhev, V. A.

TITLE: Study of the temperature dependence of certain magnetic properties of gadolinium

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 357-360

TEXT: The temperature dependences of magnetic viscosity, coercive force, magnetic susceptibility, magnetization and residual induction were measured between 78 and 300°K for two toroidal specimens of metallic 99.9 % pure gadolinium. The dimensions were: d=11 mm, D=19 mm, h= 5 mm, and d=20.1 mm, D=30.5 mm, h=10.4 mm. A ballistic apparatus with fields up to 200 oe was used for the measurements. $\chi(H)$ was determined at fields of up to 1.5 oe. At low temperatures the function was linear but the slope varied with temperature, the maximum being at 210°K, at which the $H_c(T)$ curve has a minimum. After this coercive force increases rapidly, reaching a maximum before Curie point, and then falling sharply again. The temperature dependence of specific magnetization, determined between

Card 1/2

Study of the temperature dependence...

0.4 and 12 oe, has a maximum at 210°K which flattens out with increasing magnetic field. A similar course is shown by residual induction B. At 200 oe and 78°K, B=14,500 gauss. Remagnetization was studied by means of a special electronic circuit when two square pulses of opposite polarization, following each other immediately, caused a field of 37 oe in the specimen. The pulse height of the first was 0.5 a, that of the second varied between 0 to 0.5 a (0-37 oe). The field dependence of the remagnetization period τ" was determined; this curve has a broad maximum, τ''_{max} = 530 μsec was measured between 24-30 oe. Magnetic viscosity is very small; its maximum falls with increasing temperature. There are 5 figures and 3 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 28, 1961

Card 2/2

Temperature dependence of static...

point, H_c has peaks on both sides of this minimum. At this compensation point (which is e.g. for $5Fe_2O_3 \cdot 3Dy_2O_3$ at 210°K) the hysteresis loop is a straight line, crossing the origin. This degeneracy was observed not only with the ballistic apparatus but also with an oscilloscope (500 cps). Electrical volume resistivity was measured on a MOM-4 (MOM-4) device for $R \geqslant 10^6$ ohm·cm, and with a d-c MTB (MTV) bridge for $R < 10^6$ ohm·cm. The specimens were in a cryostat (constancy of ± 2°). The curves $\log \varrho = f(1/T)$ were linear with a break at the Curie point for Er and Tu ferrite-garnets. Ye. A. Turov and Yu. P. Irkhin (FMM, 4, 9, 1959) have obtained the same results. This break is attributed to the exchange interaction of inner and outer electrons; the variation in inclination is proportional to the exchange interaction energy. Such breaks were observed not only at Curie point, but also at 348°K for Er and Tu, and 323°K for Y, garnets. At low temperatures the activation energy calculated from the inclination was 0.27 ev for Er and Y garnets; at high temperatures it was 1.6 ev (Y), 1.61 ev (Er) and 1.3 ev (Tu). I. I. Mirer took X-ray diffraction pictures of the ferrite-garnets investigated, and determined the lattice constants.

Card 2/3

34225
S/181/62/004/002/008/051
B102/B138

Temperature dependence of static...

There are 6 figures, 1 table, and 9 references: 6 Soviet and 3 non-Soviet The two references to English-language publications read as follows: W. P. Wolf and G. P. Rodrigue. J. Appl. Phys., 29, 1, 105, 1958; Van Uiter and F. W. Swanekamp. J. Appl. Phys. 28, 12, 1513, 1957.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 28, 1961

Card 3/3

40950

S/109/62/007/007/018/018
D256/D308

24.2208

AUTHORS: Telesnin, R. V., Kolotov, O. S. and Nikitina, T. N.

TITLE: Amplitude and time characteristics of some ferromagnetic films

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 7, 1962, 1235-1240

TEXT: The authors investigated the dependence of the speed of the magnetic polarity reversal of ferromagnetic films upon the reversing magnetic field. The films of 79HM (79 NM) type molybdenum permalloy and a permalloy comprising 78.8% Ni and 21.2% Fe were vacuum-evaporated upon polished glass plates. The anisotropies of the films were determined from the hysteresis loops using 3 nsec rise-time and 240 nsec width pulses for the reversal of the polarity. The signals detected from the films were amplified using a previously described circuit (O. S. Kolotov and T. N. Nikitina, *Izvestiya AN SSSR. Seriya fizicheskaya, v. 25, no. 5, 1961, 625); the signals were then displayed on the screen of a fast c.r.o. The direc-

Card 1/2 * S/048/61/025/005/016/024

tion of the reversing field was parallel to the surface of the film, the latter was placed inside a detecting loop, sensitive to the changes of the longitudinal component of the magnetic flux in the film. The results presented in the form of curves include the dependence of the amplitude of the signal detected from the film and the speed of the polarity reversal upon the reversing field for films of various thickness. The influence of a transverse magnetic field was also investigated. Conclusions: 1) Amplitude of the signal increases with increasing magnitude of the reversing field. 2) Both the amplitude of the signal and the time of the reversal increase with increasing thickness of the film. 3) It is possible to improve the amplitude and time properties of the films by applying a constant transverse magnetic field. There are 10 figures.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Faculty of Physics, Moscow State University im. M. V. Lomonosov)

--SUBMITTED: October 31, 1961

Card 2/2

L 18950-63 EWT(l)/EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3/IJP(C) JD

ACCESSION NR: AP3007508 S/0181/63/005/009/2653/2655

AUTHOR: Telesnin, R. V.; Kolotov, O. S.

TITLE: Some dynamic characteristics of thin permalloy films in the direction of the axis of difficult magnetization

SOURCE: Fizika tverdogo tela, v. 5, no. 9, 1963, 2653-2655

TOPIC TAGS: permalloy film dynamic characteristic, permalloy axis, difficult magnetization, permalloy dynamic characteristic, film dynamic characteristic, permalloy film, ferromagnetic film, dynamic characteristic, film

ABSTRACT: Ferromagnetic films sprayed on a glass base at a pressure of 10^{-5} mm Hg were investigated by using a constant magnetic field H_1 of 6 oe directed along the axis of difficult magnetization. Magnetic polarity reversals were achieved by applying a magnetic field H_2 of 24 oe maximum intensity in the direction opposite to that of the H_1 field. Constant field H_3, whose direction was perpendicular to those of fields H_1 and H_2, was also applied

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L 18950-63

ACCESSION NR: AP3007508

from time to time. It was found that for films 1000—3000 Å thick, the dynamic characteristics for the directions of easy and difficult magnetization are similar, the differences being due to the behavior of anisotropic fields and the formation of structural domains. Orig. art. has: 3 figures.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 26Apr63 DATE ACQ: 14Oct63 ENCL: 00

SUB CODE: PH NO REF SOV: 003 OTHER: 008

Card 2/2

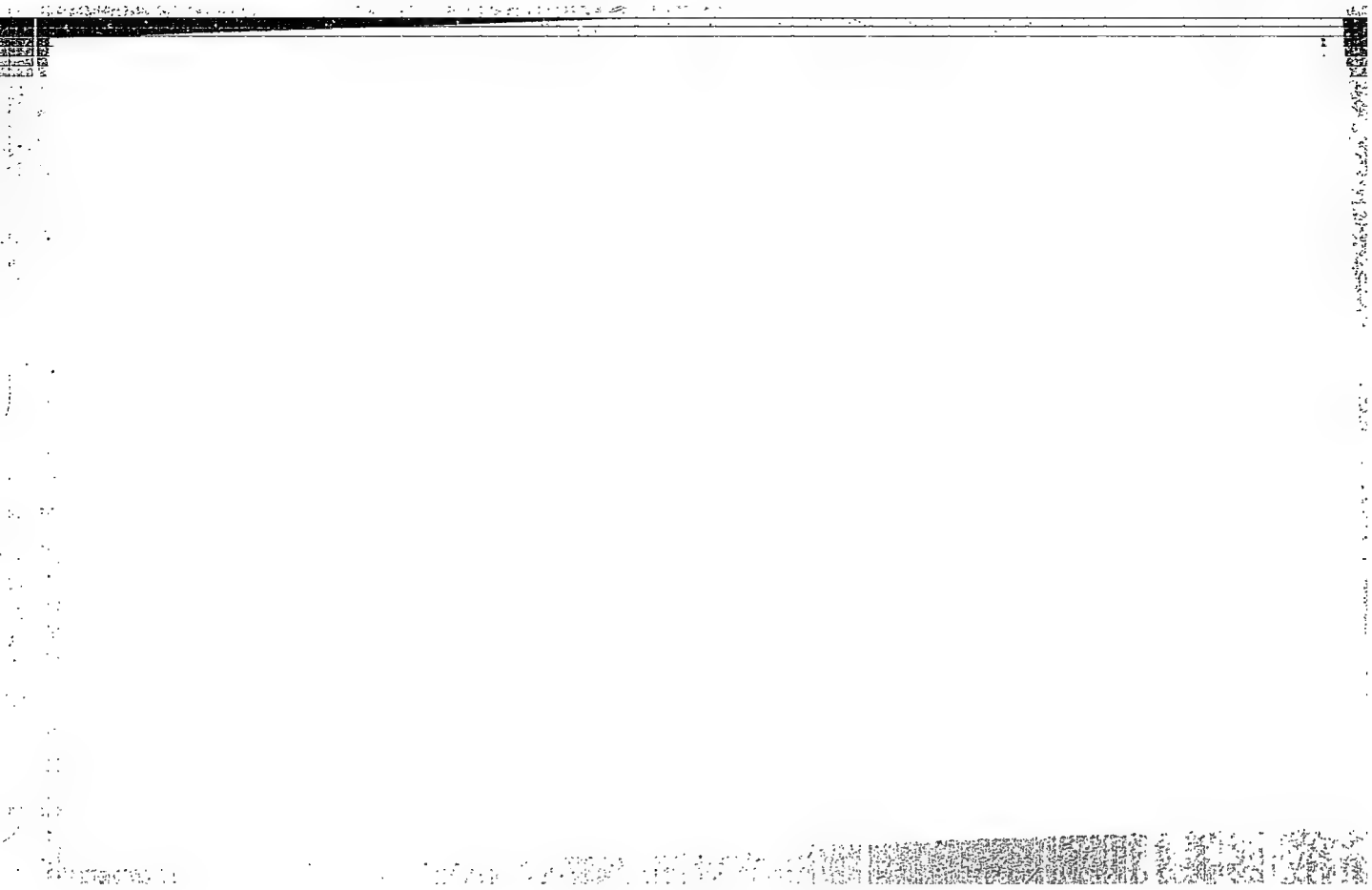
YUGOV, Vladimir Alekseyevich, kand. fiz.-mat. nauk; [illegible], A.V., dokt. fiz.-mat. nauk, prof., [illegible], red.

[Thin films and their use in radio measuring techniques] Tonkie plenki i ikh primenenie v radioizmeritel'noi tekhnike. Moskva, Izd-vo Standartov, 1964. 122 p. (MIRA 17:11)

IVERONOVA, V.I., prof., red.; GRABOVSKIY, M.A., dots., red.; KONONKOV, A.F., kand. fiz.-mate. nauk, red.; MALOV, N.N., prof., red.; TELESNIN, R.V., prof., red.; USAGIN, S.I., st. prepod., red.; YAKOVLEV, K.P., prof., red.; YAKOVLEV, I.A., prof., red.

[Methodology and technique of lecture demonstrations in physics; transactions] Metodika i tekhnika lektsionnykh demonstratsii po fizike; sbornik trudov. Moskva, Izd-vo Mosk. univ., 1964. 280 p. (MIRA 17:5)

1. Mezhvuzovskaya konferentsiya po lektsionnym demonstratsiyam po kursu obshchey fiziki. 1st.



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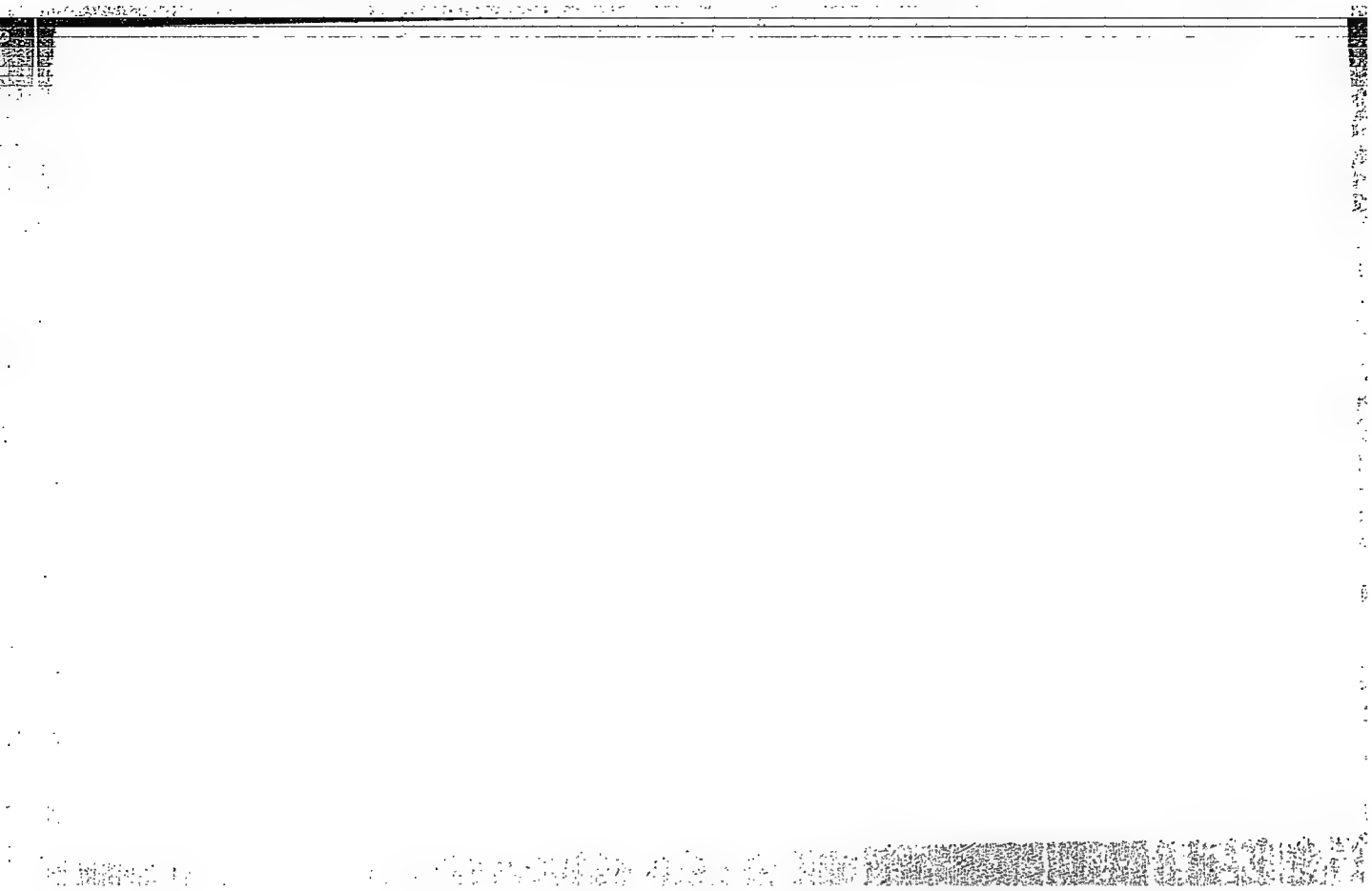

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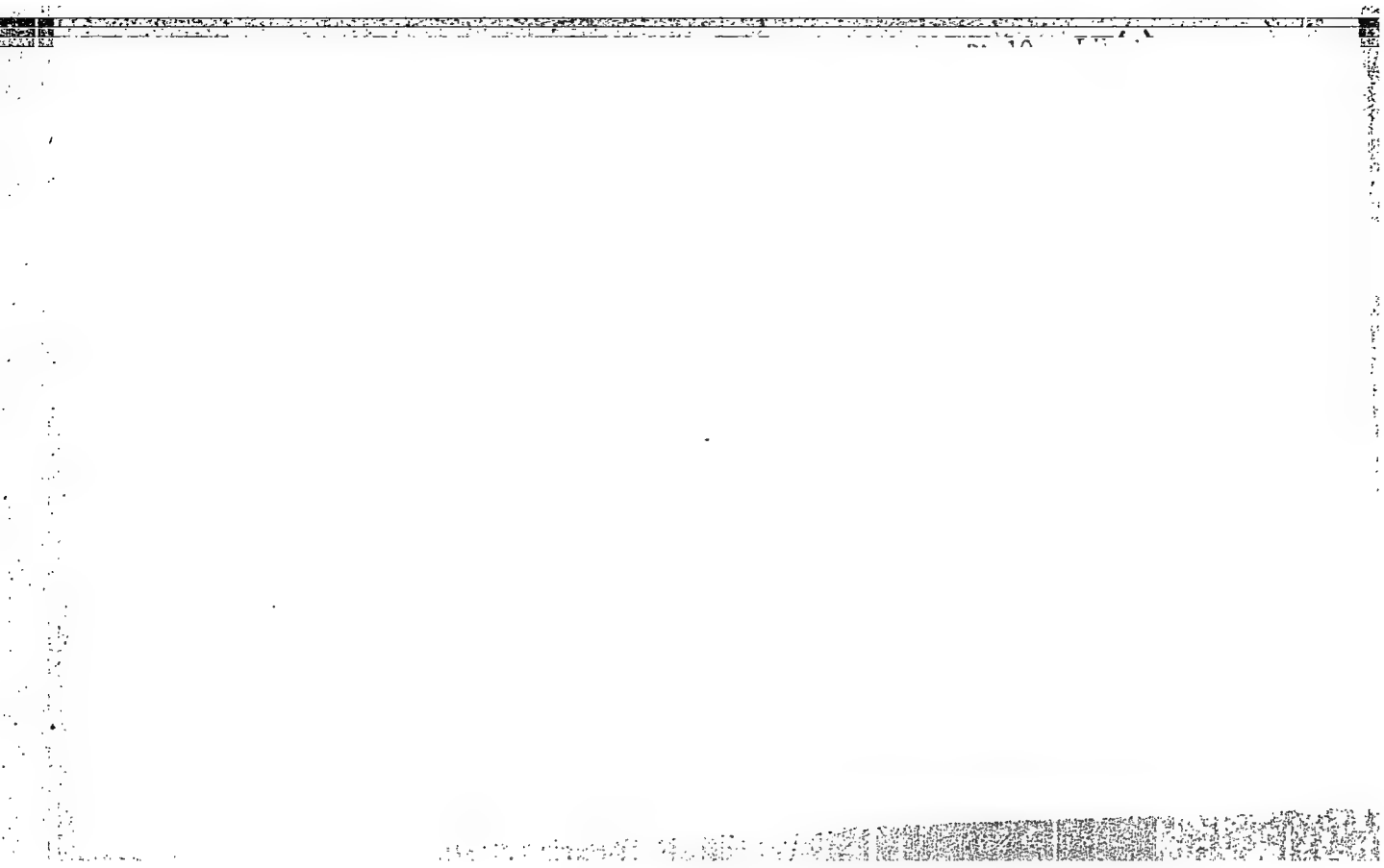
[redacted] Kafedra obshchey fiziki dlya fizikov, Moskovskiy Universitet



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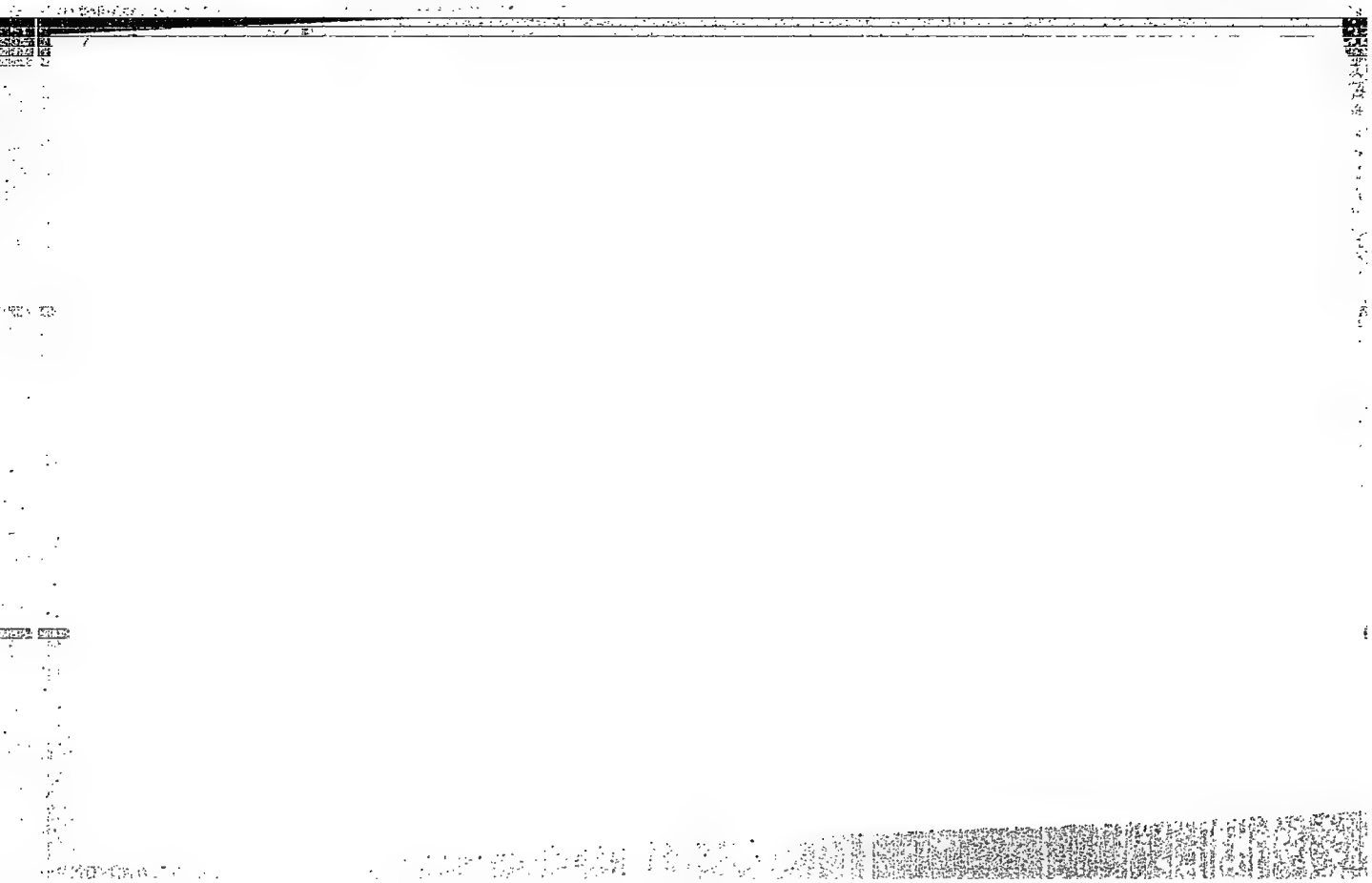

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TELESNIN, Roman Vladimirovich; SELIVERSTOVA, A.I., red.

[Molecular physics] Molekuliarnaia fizika. Moskva, Vysshaia shkola, 1965. 297 p. (MIRA 18:5)

ACCESSION NR: AP4028460 S/0181/64/006/004/1234/1235

AUTHORS: Telesnin, R. V.; Nikitina, T. N.

TITLE: The effect of anisotropy dispersion on the dynamic properties of thin permalloy films

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1234-1235

TOPIC TAGS: permalloy, thin film, magnetism reversal, switching coefficient, permalloy 79 NMA

ABSTRACT: The authors set themselves the task of finding the connection between the dynamic properties of thin permalloy films (the time of magnetic reversal and the switching coefficient) and the dispersion of anisotropy in a particular direction. Measurements were made on films obtained by sputtering permalloy 79 NMA in a vacuum of 10^{-5} mm Hg on a glassy, optical, polished base. It was found that the switching coefficient increases linearly with increase in angular dispersion of anisotropy. It depends only on dispersion, not on how the dispersion was obtained (such as temperature of base during sputtering). The authors conclude that the rate of magnetic reversal in the films in the field of coherent rotation

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ACCESSION NR: AP4028460

depends directly on the dispersion of anisotropy in the films, without regard to the conditions under which the films were formed. The rate of magnetic reversal is affected by changes in dispersion. Orig. art. has: 2 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 18Nov63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: SS, EM NO REF SOV: 003 OTHER: 006

Card 2/2

ACCESSION NR: AP4039594 S/0126/64/017/005/0672/0677

AUTHORS: Telesnin, R. V.; Nikitina, T. N.

TITLE: The effect of anisotropy dispersion on the dynamic properties of thin permalloy films

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 5, 1964, 672-677

TOPIC TAGS: anisotropy, thin film, permalloy, vacuum vapor deposition, temperature dependence, magnetic field/ 79NMA permalloy

ABSTRACT: The authors have investigated the effect of the parameters of film deposition (substrate temperature and strength of external magnetic field) on the dispersion of anisotropy. The films were obtained by vacuum vapor deposition of 79NMA permalloy (at 10^{-5} mm Hg) on optically polished substrates of glass. About 300 films were prepared (8 mm in diameter, 1300-1500 A in thickness). The substrates were cleaned chemically and then heated at 300C for 3-4 hours (before film deposition). Substrate temperature during deposition ranged from 20 to 320C, and the magnetic field ranged from 0 to 250 oersteds. The dynamic properties were measured by a pulse method. The films were so oriented that the pulsing field

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ACCESSION NR: AP4039594

was directed along the axis of easy magnetization in the films. Results show that the parameters of film deposition strongly affect the dispersion of anisotropy. As the dispersion changes, the rate of magnetization reversal also changes. The parameters of deposition affect the rate of magnetization reversal through dispersion of anisotropy. The greatest effect of the depositional parameters is the rate of coherent rotation of the films. The rate of incoherent processes of rotation depends but slightly on the conditions under which the films were deposited. Orig. art. has: 8 figures.

ASSOCIATION: Moskovskiy gosuniversitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 10Jun63 ENCL: 00

SUB CODE: MM, SS NO REF SOV: 006 OTHER: 002

Card 2/2

S/0126/64/017/005/0693/0697

ACCESSION NR: AP4039597

AUTHORS: Telesnin, R. V.; Sarayeva, I. M.; Shishkov, A. G.

TITLE: Magnetic anisotropy of films obtained with the simultaneous action of an external magnetic field and an oblique inclination of the molecular beam

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 5, 1964, 693-697

TOPIC TAGS: magnetic anisotropy, magnetic field, molecular beam, permalloy, magnetization

ABSTRACT: The position of the axis of easy magnetization in permalloy films deposited under the simultaneous action of an external magnetic field and a slanting inclination of the molecular beam at both high and room temperatures was studied. The permalloy films, deposited on optically polished glass plates in a vacuum of $5 \cdot 10^{-5}$ mm Hg had a composition of 81% Ni, 16% Fe, ~1% Mo. The experimental setup (see Fig. 1 on the Enclosure) permitted the straight, active section of the permalloy-coated tungsten wire evaporator to be positioned either parallel to or perpendicular to the external magnetic field H. The angle between the metal beam and a plane normal to the base plate was 14° at positions a and b, and was 3° at positions c and d. Angle Θ of the easy magnetization axis was

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ACCESSION NR: AP4039597

measured in respect to the 85-oersted uniform magnetic field produced by a pair of Helmholtz coils. Film thicknesses were measured by the many-pronged interference method. The anisotropy, coercive force and θ on the films were measured as described by V. V. Kobelev (Sb. Magnitny*ye elementy* ustroystv vy*chislitel'noy tekhniki, Izd AN SSSR, M., 1961, p.131) at 1000 cps with the base plate at room temperature and at 300C. The "self-shadowing" effect of a straight evaporator in the absence of an external magnetic field should direct the easy magnetization axis parallel to the linear evaporator, but this effect was observed experimentally only with the base plate at room temperature and at 14° to the beam. In the other three cases the anisotropy was basically directed by the spontaneous magnetization. With the evaporator parallel to H, at room temperature the axis of easy magnetization was parallel to H and the magnitude of the field of anisotropy was larger at 14° than at 3°; at 300C the axis varied with each sputtering, but within a narrower limit of θ than with no external H. With the evaporator perpendicular to H, the easy magnetization axis fell between both directions (e.g., at a, $\theta = \frac{\pi}{4}$ /see dash line in Fig. 1 on the Enclosure/). At 300C θ was closer to 0 because the inclined beam exerted a lesser effect and the axis scatter was greater than at room temperature (the orientation action of H was decreased at this temperature). The anisotropy energy is not directly additive but must contain a term to account for the interaction effect of the slanting beam with the external H. This added

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ACCESSION NR: AP4039597

function is axisymmetrical and must be expressed by even periodic functions of θ. The direction of the easy magnetization axis may be determined from the equilibrium conditions of this function. Apparently at room temperature the slanting beam had the ability to create elongated networks of crystallites which disrupt the uniformity of a plane, hindering the boundary shifting. Orig. art. has: 1 figure, 3 tables, and 6 equations.

ASSOCIATION: Moskovskiy gosuniversitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 24Jun63

ENCL: 01

SUB CODE: MM

NO REF SOV: 002

OTHER: 005

Card 3/4

ACCESSION NR: AP4039597

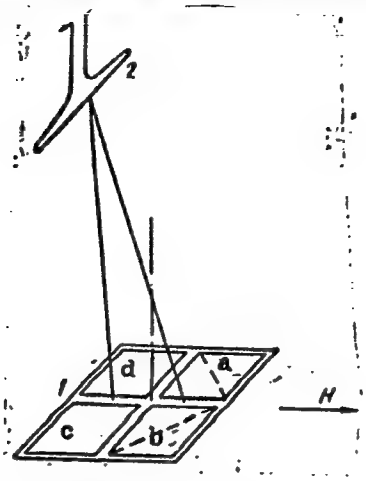

Fig. 1. Relative position of the base plate holder (1), evaporator (2), and external magnetic field (H).

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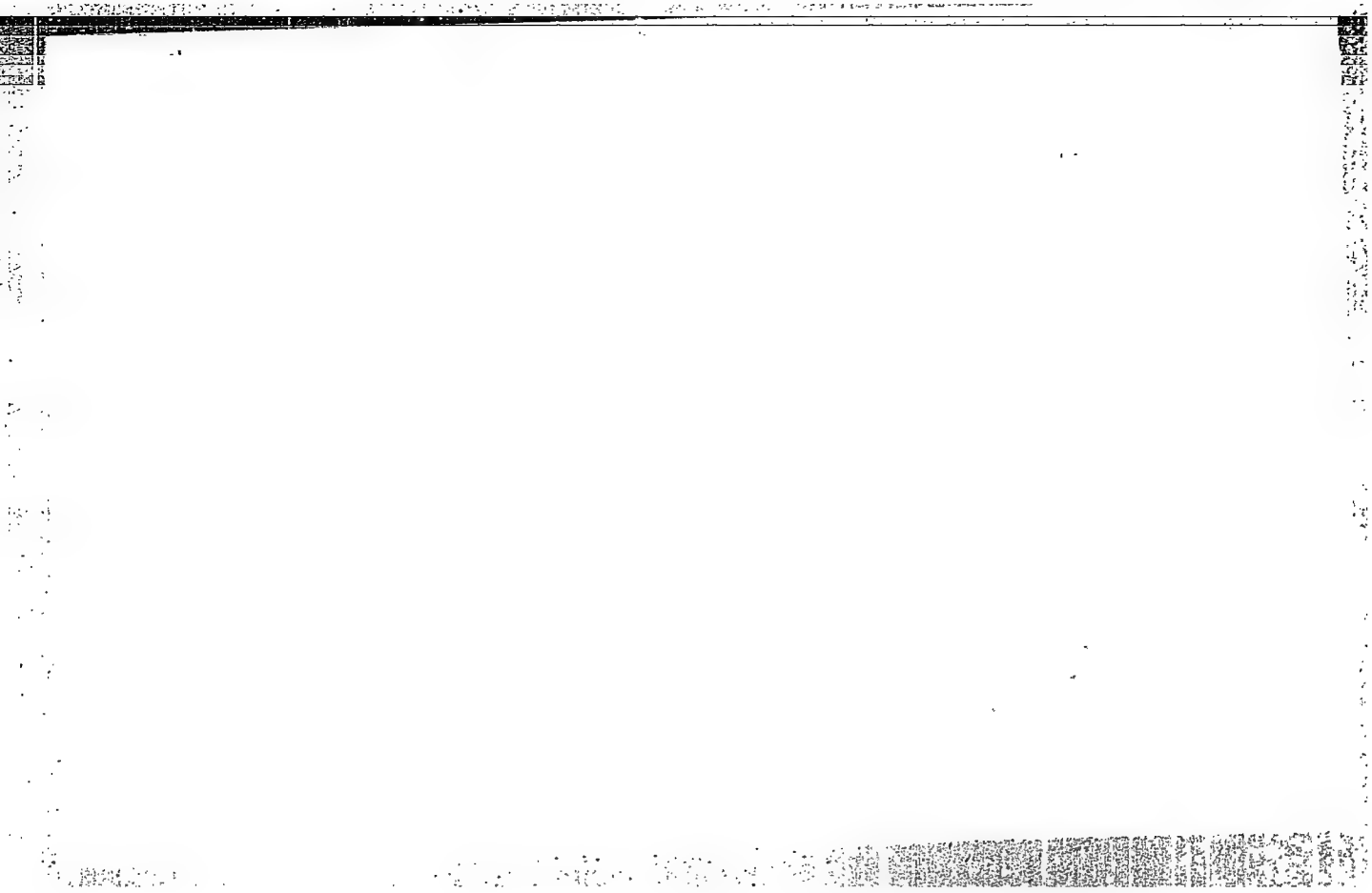

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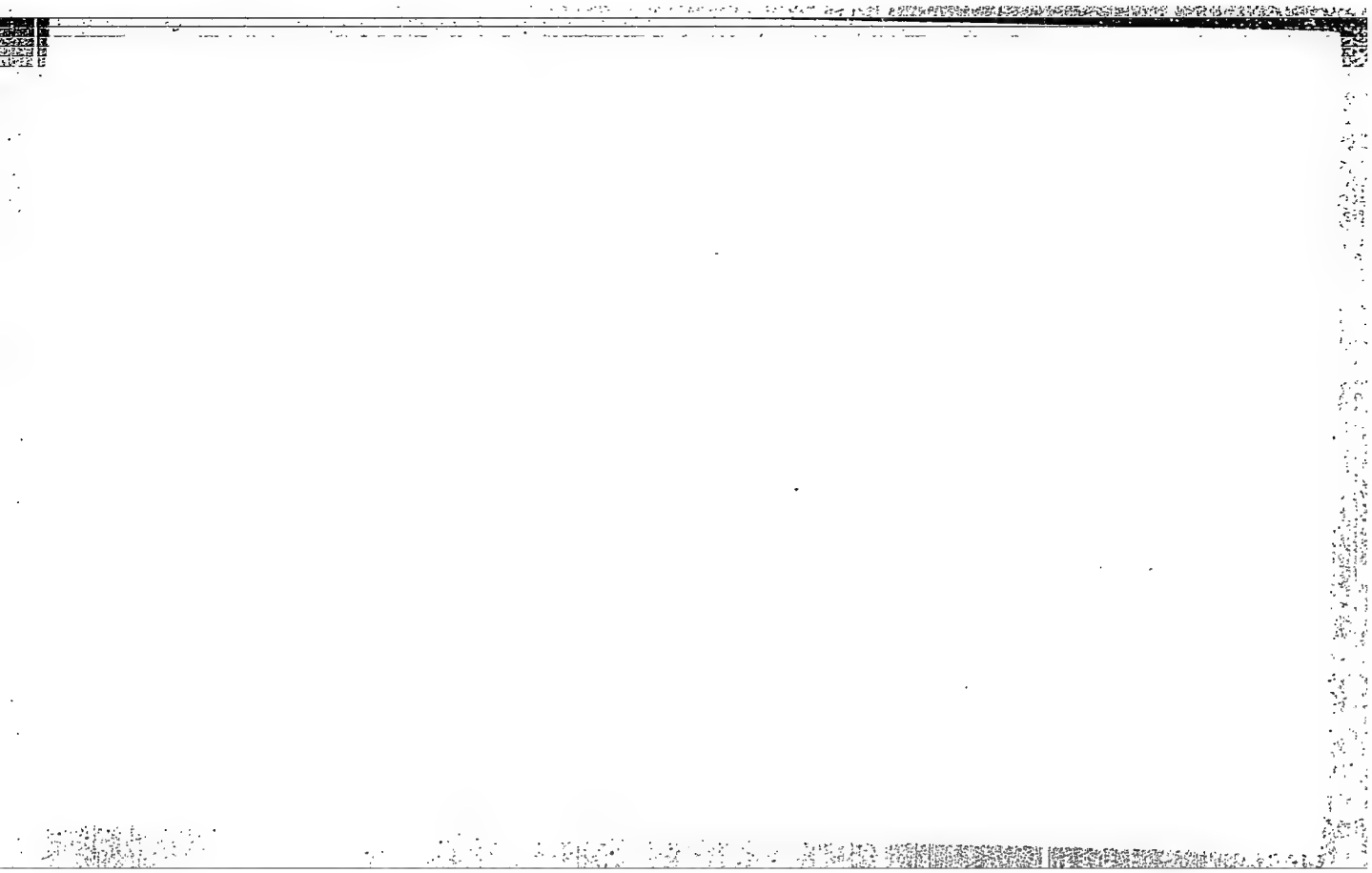

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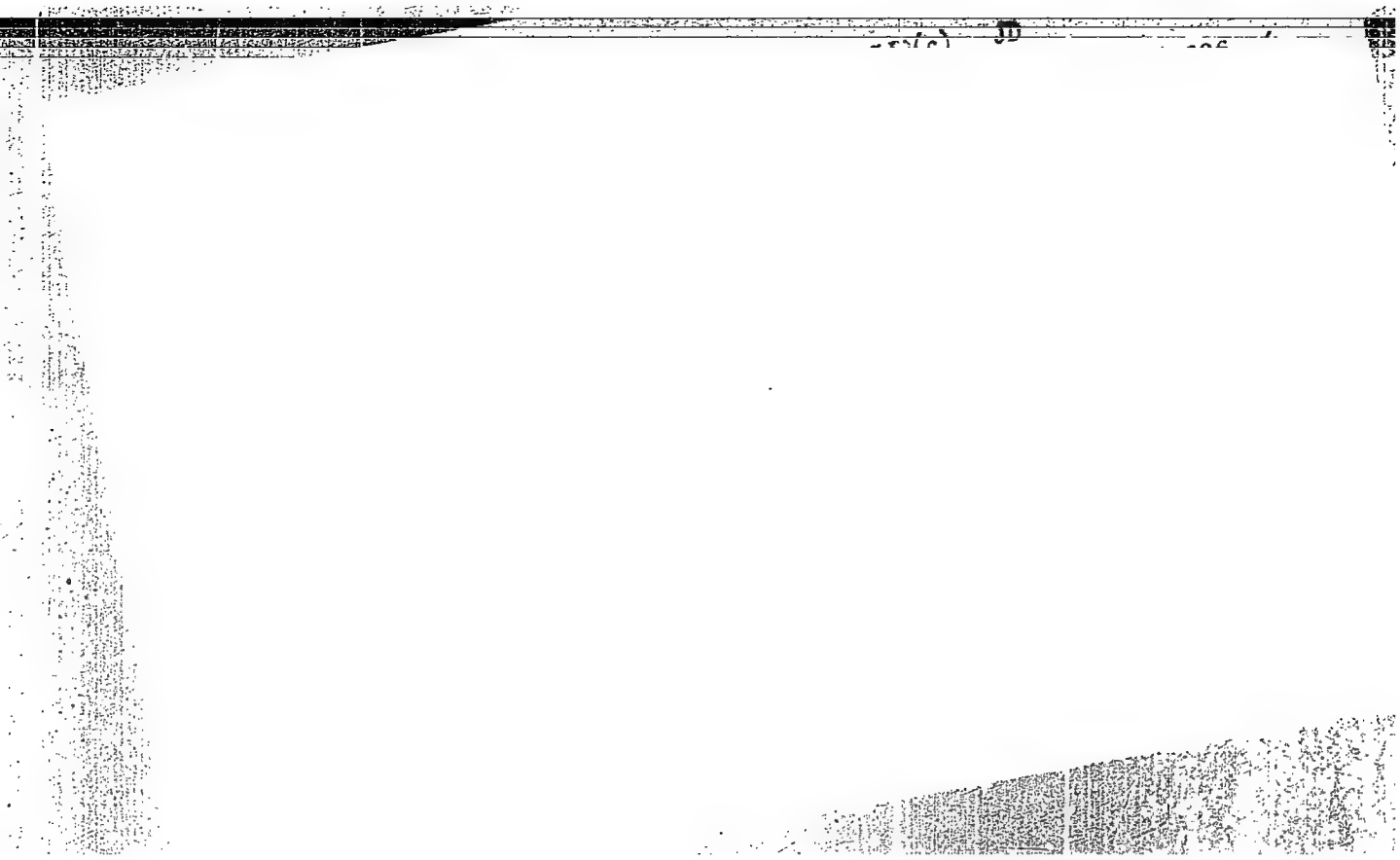

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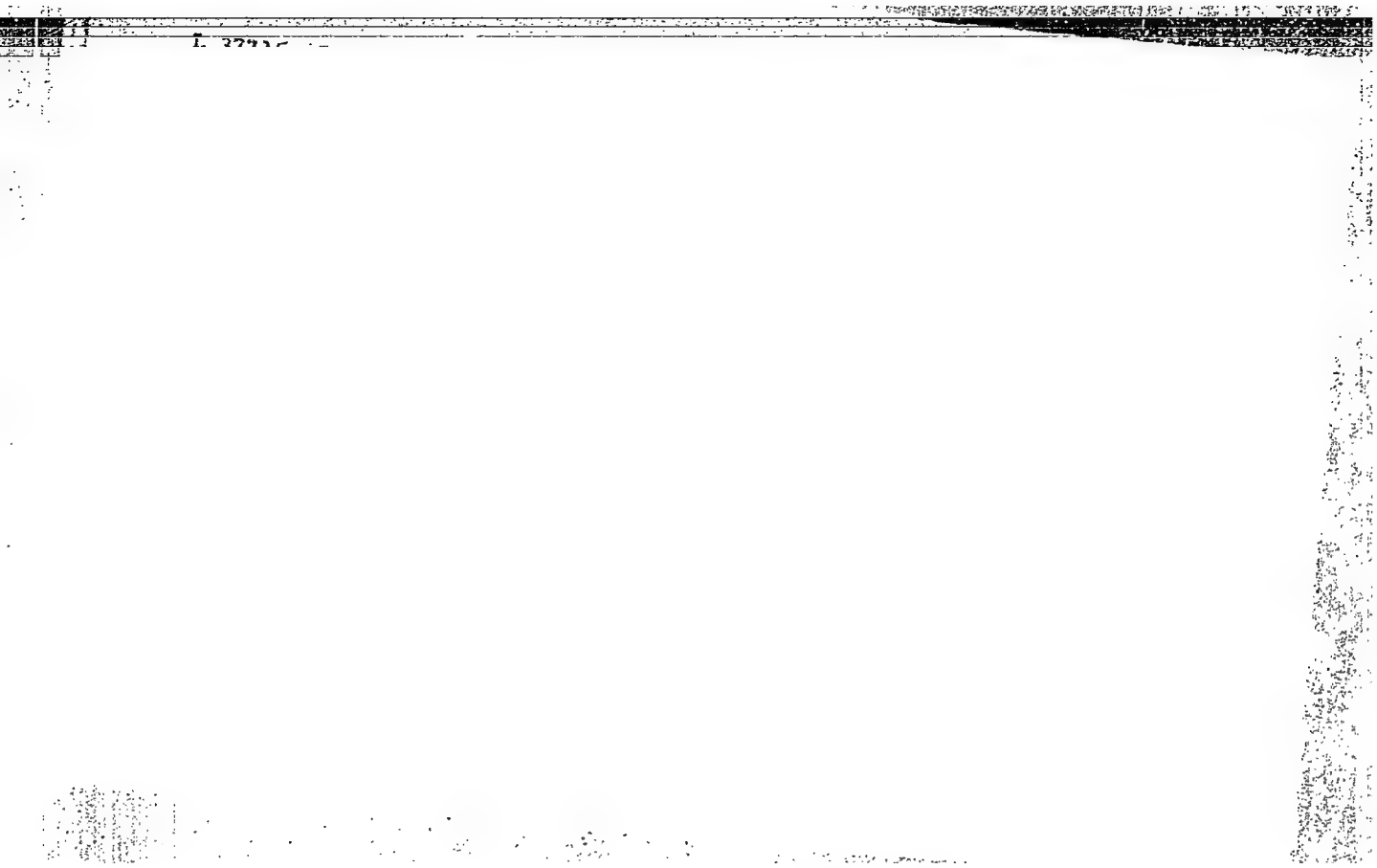

TELESNIN, R.V.; NIKITINA, T.N.

Effect of the thickness of thin permalloy films on their dynamic properies. Vest. Mosk. un. Ser.3:Fiz., astron. 19 no.5:11-14 S-O '64. (MIRA 17:12)

1. Kafedra obshchey fiziki dlya fizikov, Moskovskiy universitet.

ACCESSION NR: AP4023409 S/0048/64/028/003/0572/0579

AUTHOR: Telesnin, R.V.; Il'icheva, Ye.N.; Kanavina, N.G.; Kolotov, O.S.; Nikitina, T.N.; Shishkov, A.G.

TITLE: Investigation of some dynamic properties and the domain structure of thin iron-nickel films [Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 572-579

TOPIC TAGS: thin ferromagnetic films, thin permalloy films, thin film domain structure, thin film coercive force, film magnetization switching, thin film hysteresis

ABSTRACT: The dispersion of the direction of the anisotropy axis, magnetization reversal (switching) time, coercive force, and anisotropy field were measured for a number of thin films of permalloy 79НМА. Changes in the domain structure of the films during quasistatic magnetization reversal were observed by means of the magnetooptical Kerr effect. The films were vacuum deposited on polished glass at various temperatures and with various values of applied magnetic field. The dispersion of the anisotropy was measured by a slight modification of the method of D.O.Smith

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ACCESSION NR: AP4023409

(J.Appl.Phys.33,1399,1962). The field $H_{0.7}$ at which the flux linking the transverse coil reached 0.7 of its maximum value was taken as a measure of the dispersion. Both $H_{0.7}$ and the switching ratio (the product of the magnetization reversal time by the excess of the magnetizing field over the coercive force) behaved similarly as functions of the temperature and magnetic field at deposition. From this it is concluded that the dynamic properties of the films are determined by the dispersion of anisotropy. Curves showing the reciprocal of the magnetization reversal time as a function of the magnetizing field in the presence of a constant transverse field were straight lines hvaing a single sharp bend. The bend is interpreted as indicating a transition from magnetization by uniform rotation to magnetization by non-uniform rotation. The product of the magnetizing field and the transverse field at the transition was a linear function of $H_{0.7}$ for films of the same thickness. From an analysis of the rather complex hysteresis phenomena observed in films with a tapering edge (thickness falling to zero over a distance of 1 or 2 mm), and from observations of the accompanying changes of domain structure, it was possible to determine the field at which reverse magnetization nuclei began spontaneously to form. This field was 2.0 Oe for nearly all the films, regardless of thickness. Critical curves for magnetization reversal in slowly changing fields making various angles

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ACCESSION NR: AP4023409

with the easy magnetization axis did not conform to the theory of uniform rotation of magnetization. Both domain wall displacement and incoherent rotation appeared to be involved. The critical angle was a function of the ratio of the coercive force to the anisotropy field, and was independent of film thickness. The values obtained for films from 1200 to 1700 Å thick agree with those obtained by W.Metzdorf (Z.Ang. Phys.14,7,421,1962) for films of half this thickness. In films having a tapering edge, magnetization reversal in fields making a small angle with the easy magnetization axis occurred suddenly; a reverse magnetization nucleus would expand to fill the whole film as soon as it was formed. Orig.art.has: 1 formula, 12 figures and 1 table.

ASSOCIATION: none

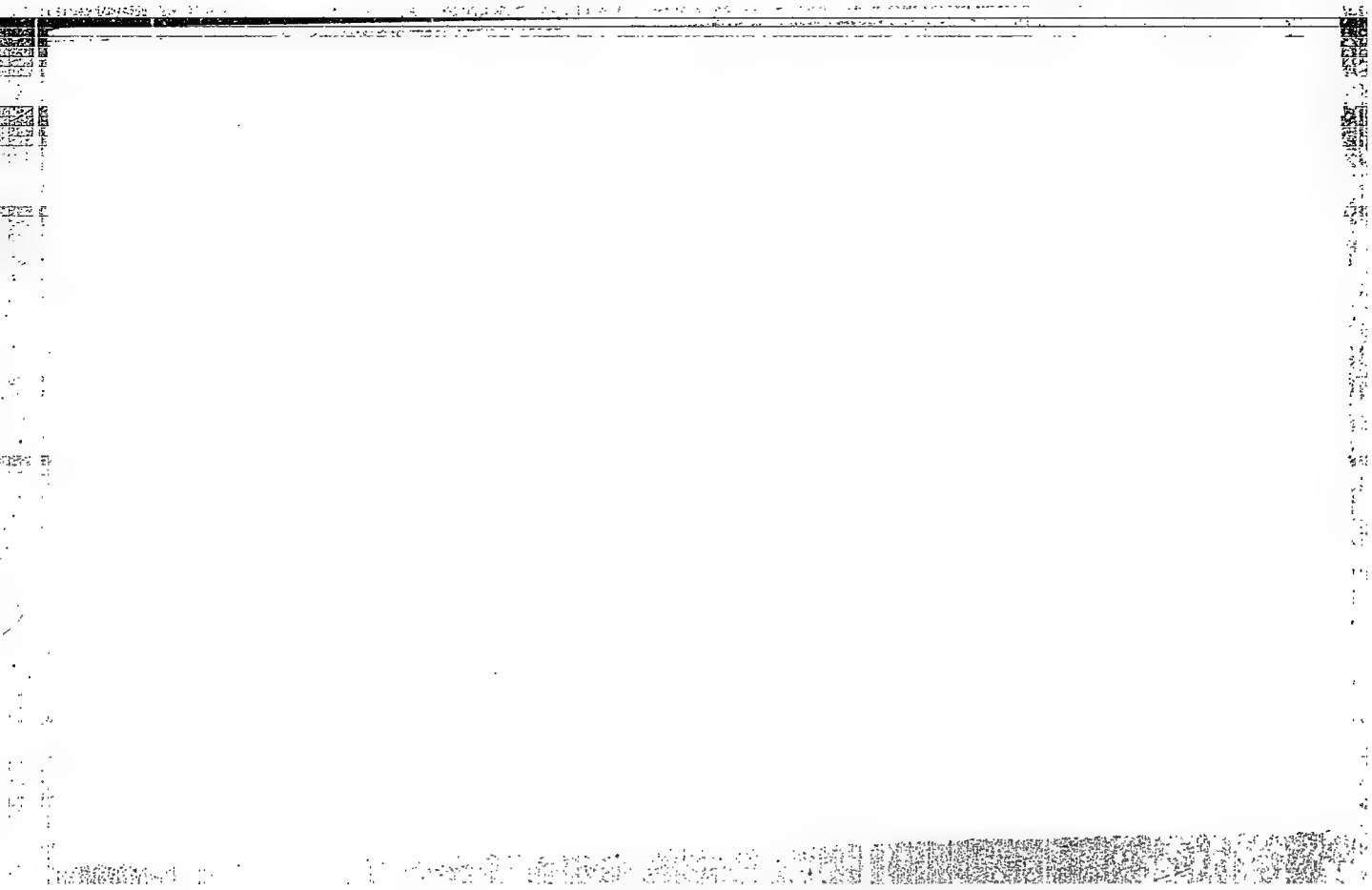
SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 006 OTHER: 005

Card 3/3

TELESNIN, R.V., prof.

Physics of thin ferromagnetic films; all-Union symposium in Irkutsk. Vest. AN SSSR. 34 no.11:107-108 N '64.
(MIRA 17:12)



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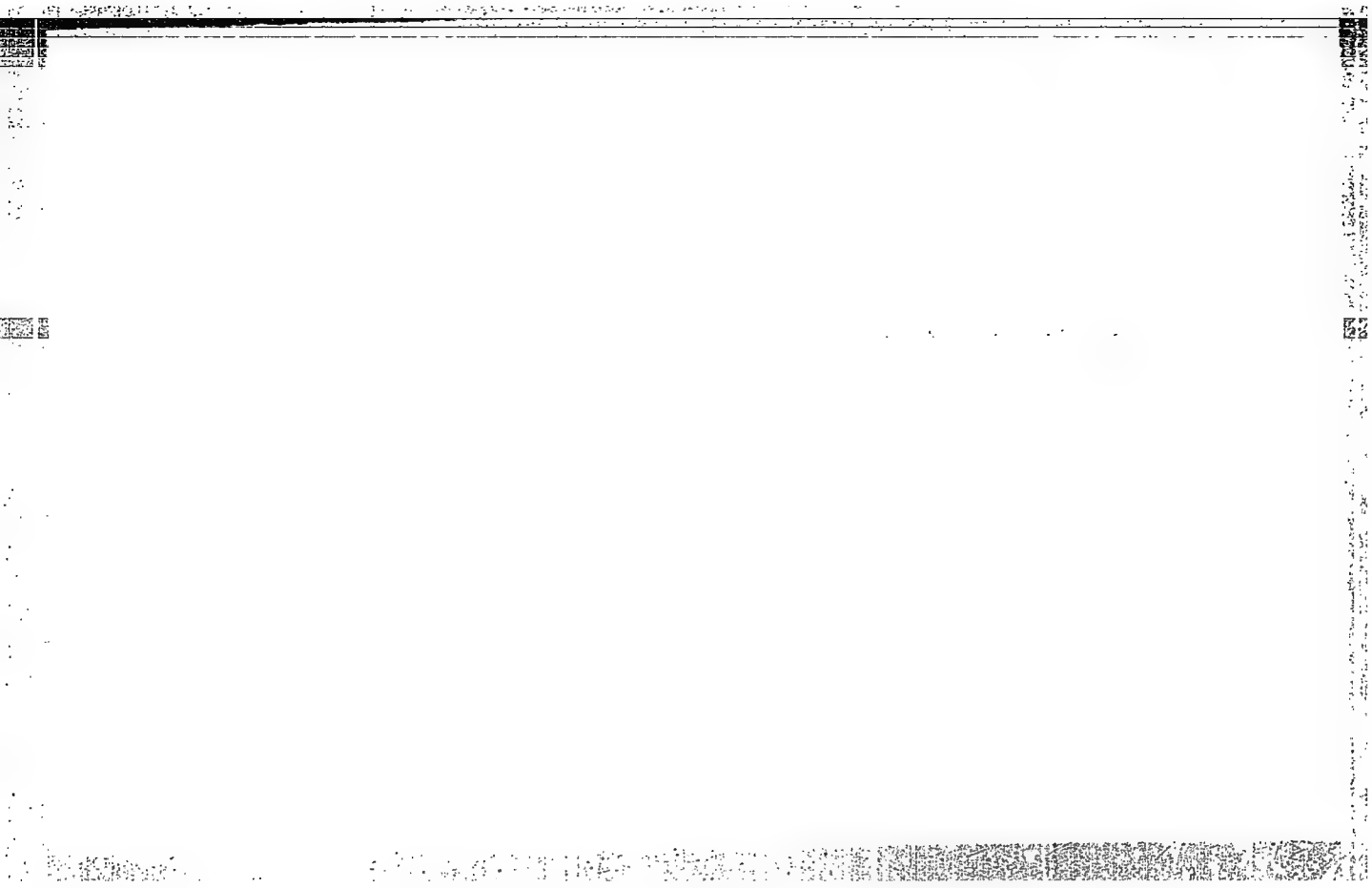

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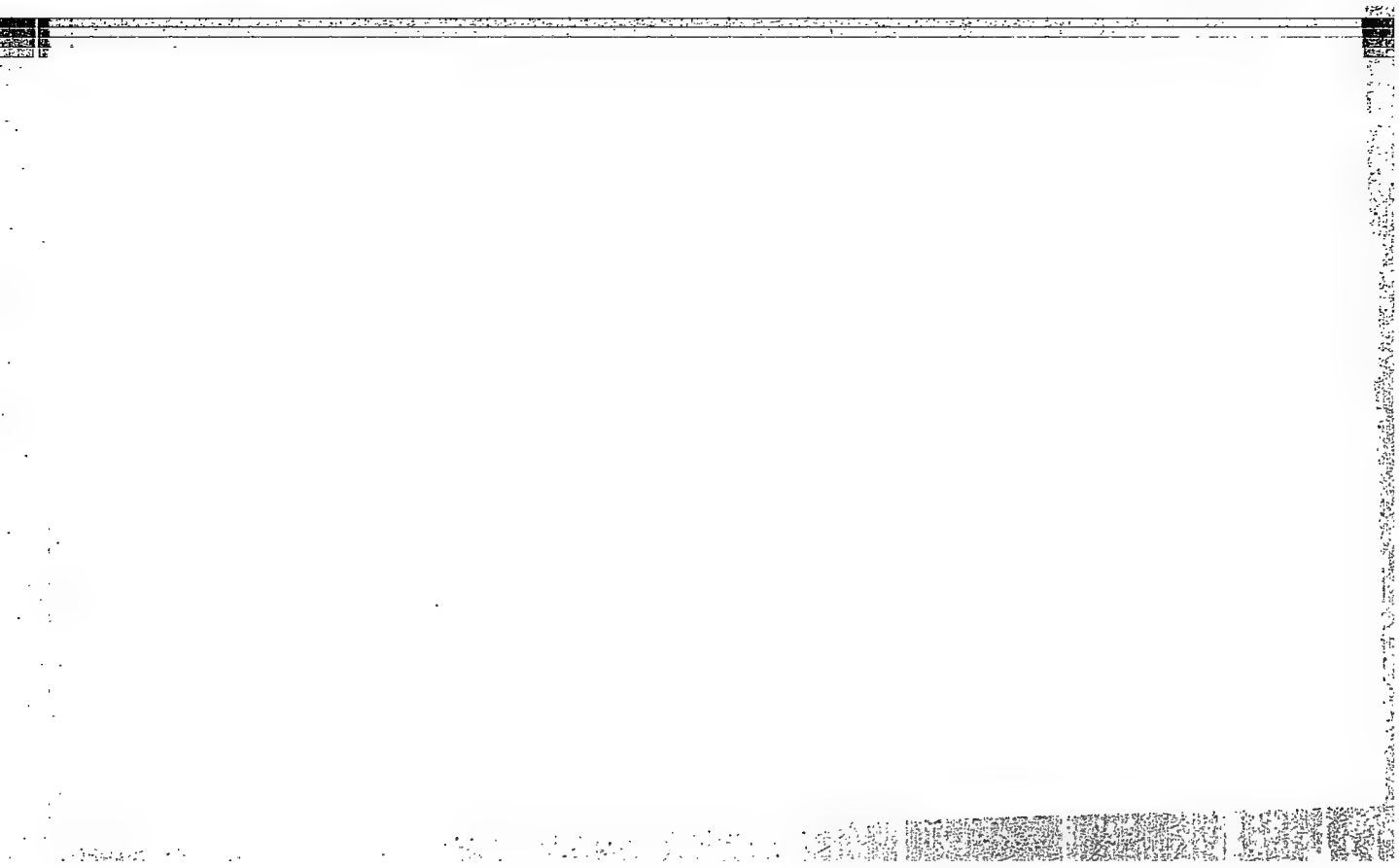

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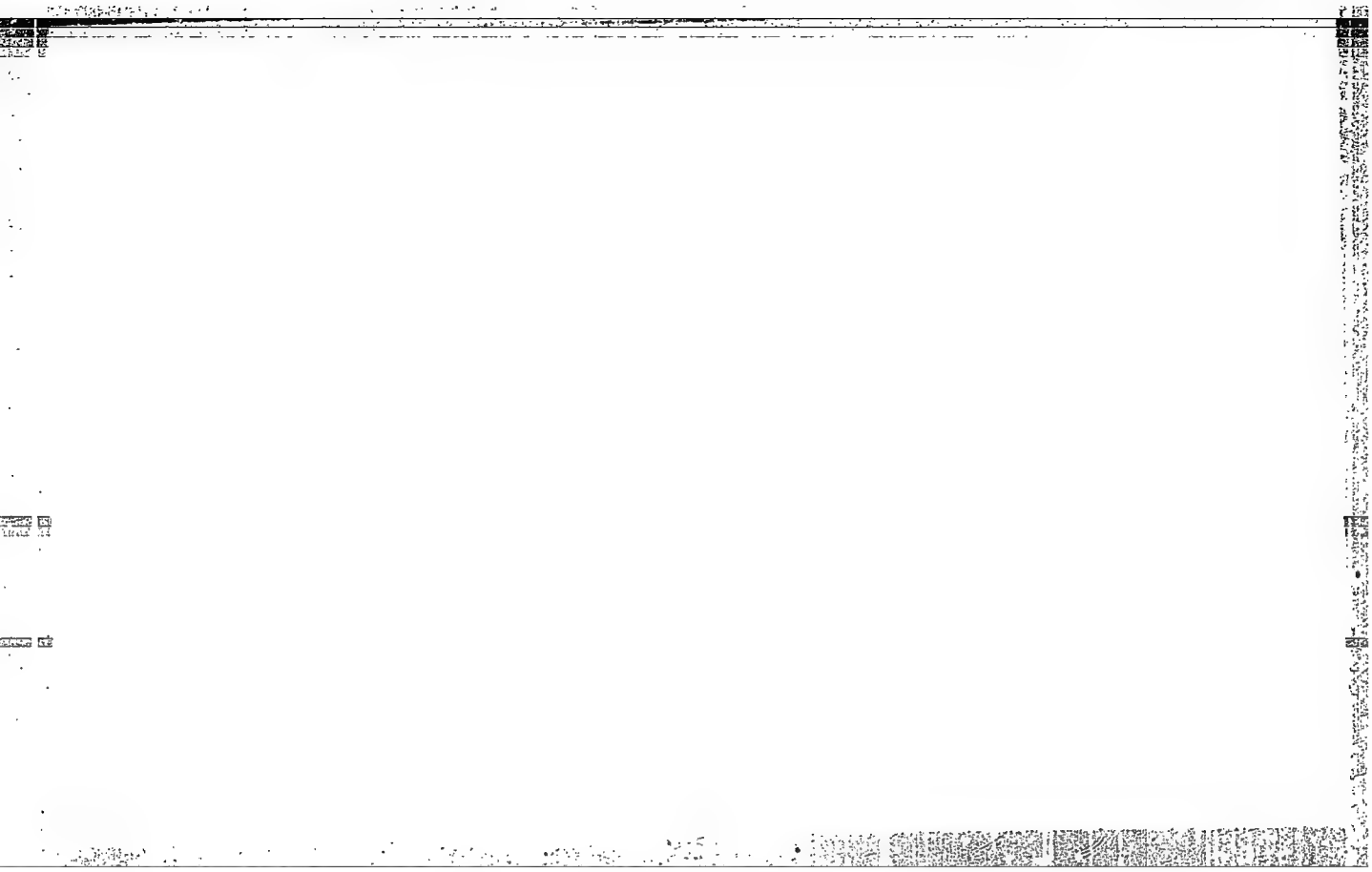

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L 10286-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD
ACC NR: AP5025317 SOURCE CODE: UR/0126/65/020/003/0349/0354

AUTHOR: Telesnin, R. V.; Makarov, K. T.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosuniversitet)

TITLE: Anisotropy of magnetic viscosity of some ferrite monocrystals with spinel and garnet structures

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 349-354

TOPIC TAGS: magnetic anisotropy, magnetic viscosity, ferrite, crystallography, crystal, garnet

ABSTRACT: The magnetic viscosity of four ferrites (MgO 24+MnO+32+Fe_2O_3 44%; MgO 10+MnO 40+Fe_2O_3 50%; nearly stoichiometric $MnFe_2O_3$; and $3Y_2O_3 \cdot 5Fe_2O_3$) was measured under pulsing conditions, in the crystallographic directions [111], [110], and [100], by using the method developed by R.V. Telesin and E.F. Kuritsyna (Ferrity, Minsk, Izd. AN BSSR, 1960, p.320). The magnetic viscosity was studied by an interpretation of the hysteresis loop and by taking the time τ, necessary for magnetic reversal, as the value of magnetic viscosity. The values of coercive force H_c, maximal field B_r, and the $B_r : H_m$ ratios were determined

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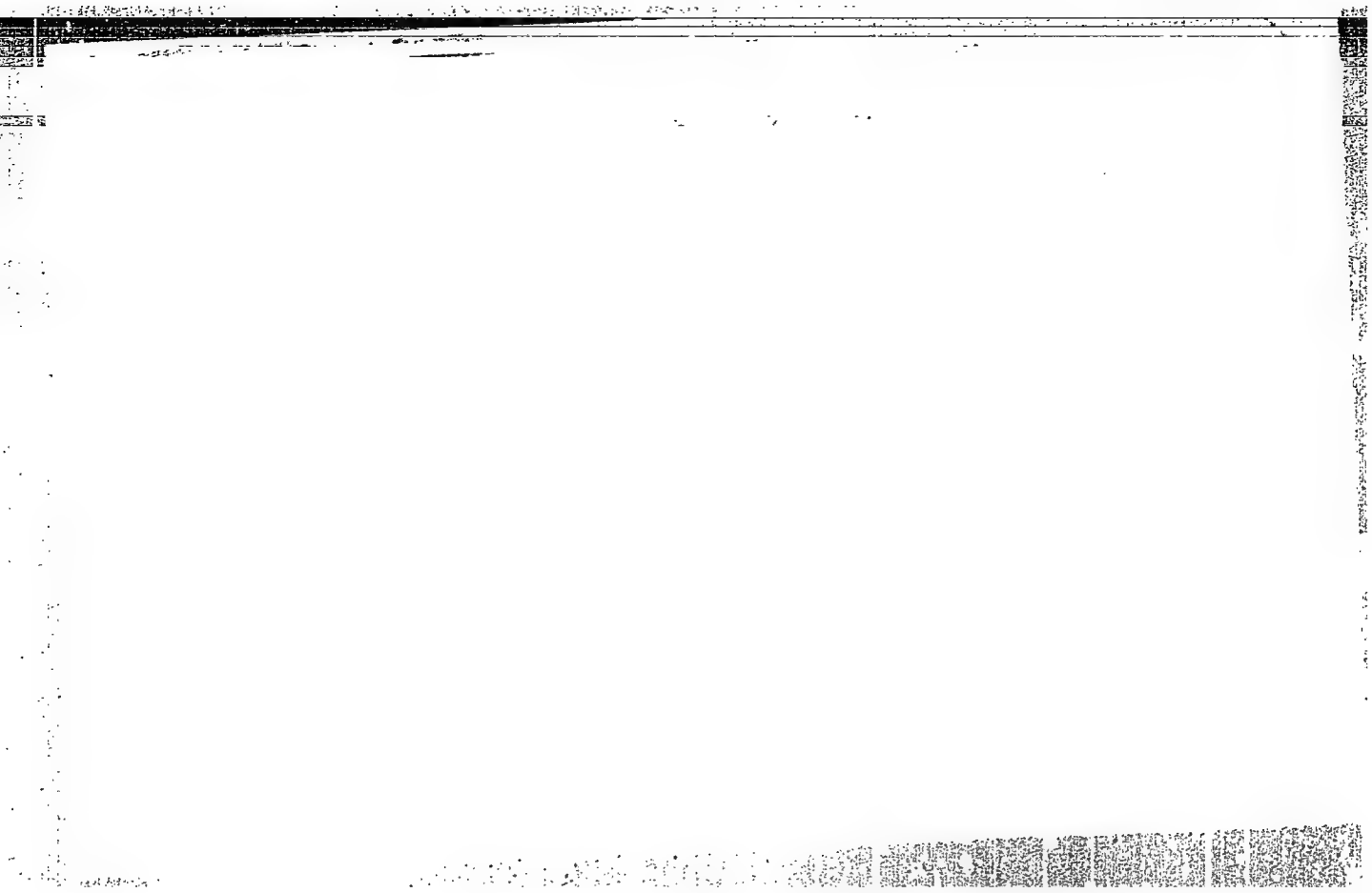
UDC: 538.245

from the hysteresis loops of the samples. The graphs presenting the results showed that the viscosities of each ferrite monocrystal were different in the various crystallographic directions, i.e. that their magnetic viscosity was anisotropic. The anisotropy was the strongest in the region of the medium fields, where the ferrites had the highest viscosity. The anisotropy of magnetic viscosity of ferrite monocrystals was characterized by the ratio of viscosities in the main crystallographic directions, i.e. by the ratio $\tau[111] : \tau[110] : \tau[100]$. The highest values of this ratio in ferrites, having the structures of spinel and garnet, were 2.3 : 1.3 : 1 and 2.4 : 1.5 : 1, respectively. The highest viscosity, during reversal of magnetization in ferrites having the spinel structure, was observed in the direction [111] ; the highest viscosity in ferrites having the garnet structure was observed in the direction [100] . Orig. art. has: 5 figures and 2 tables.

SUB CODE: 20/ SUBM DATE: 26Feb65/ NR REF SOV: 006/ OTHER: 001

OC



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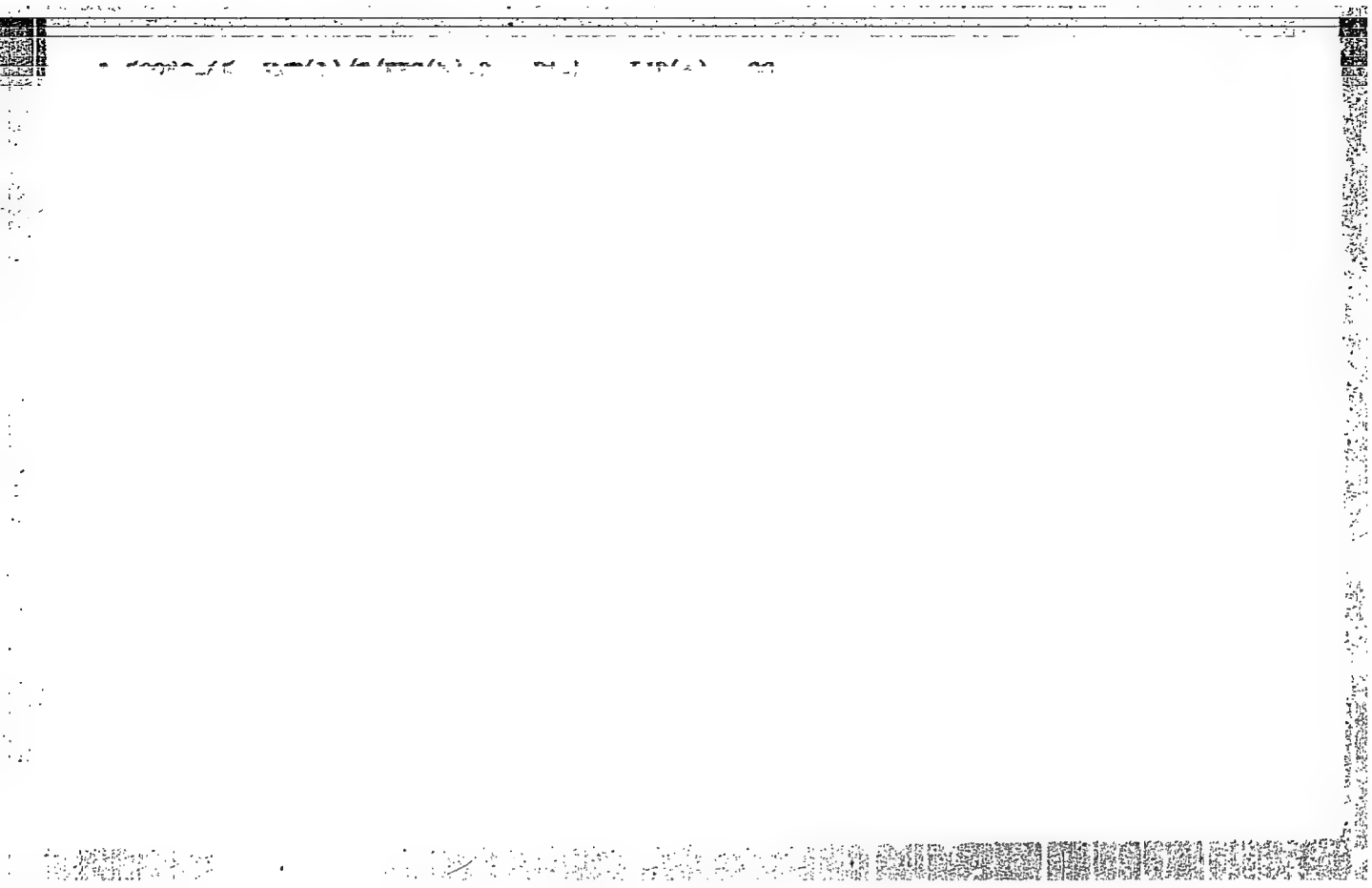

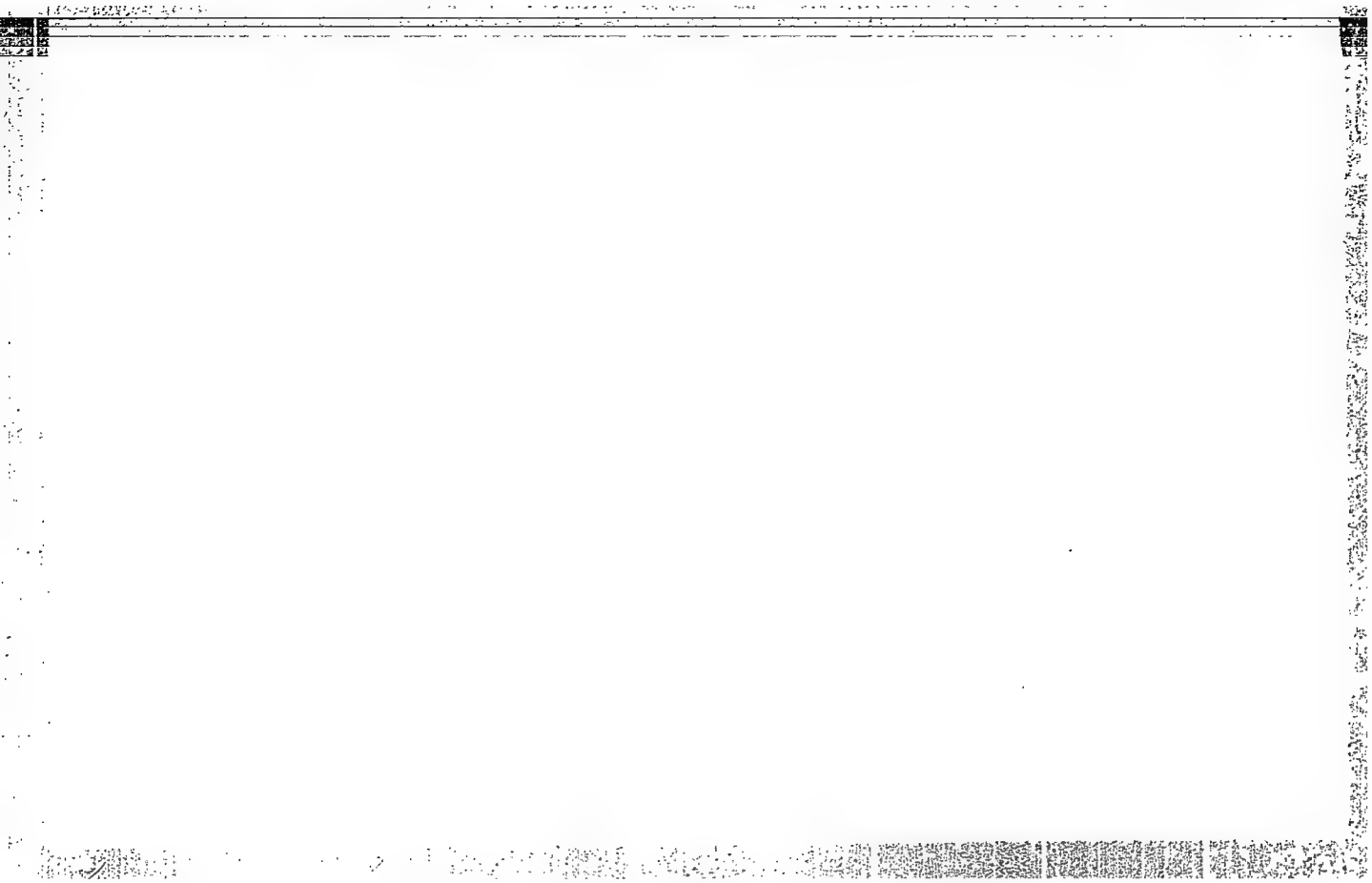

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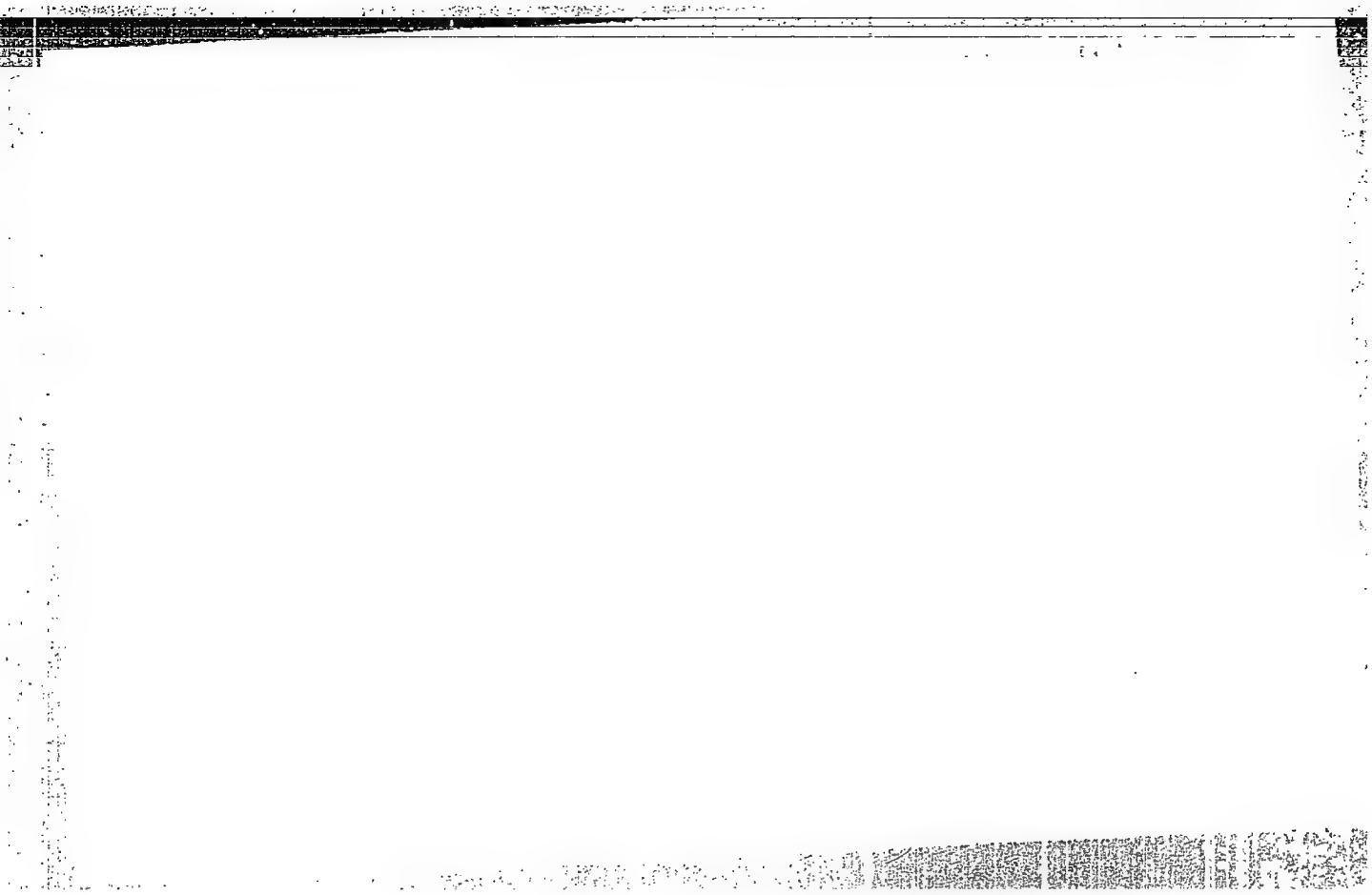

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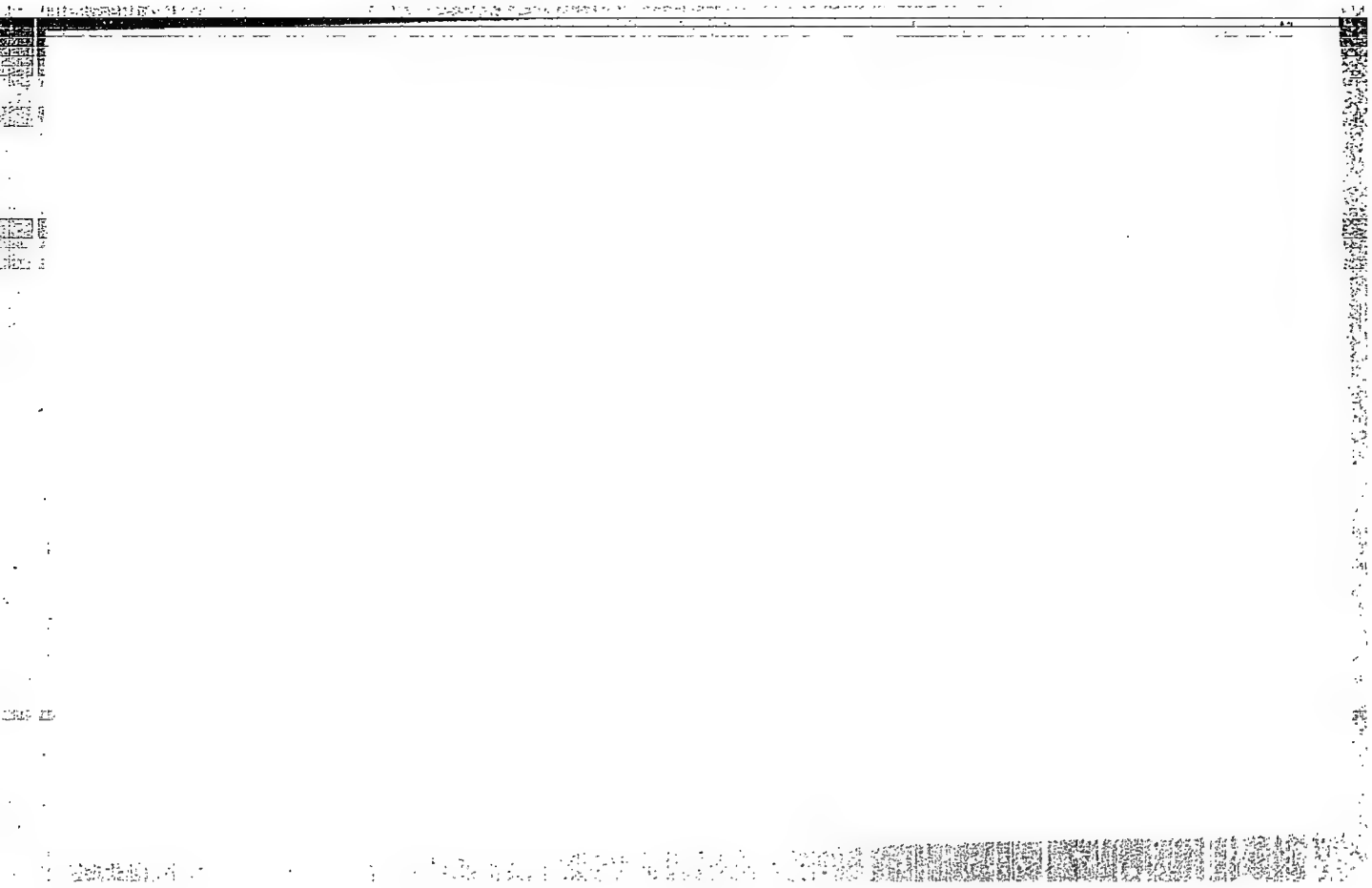

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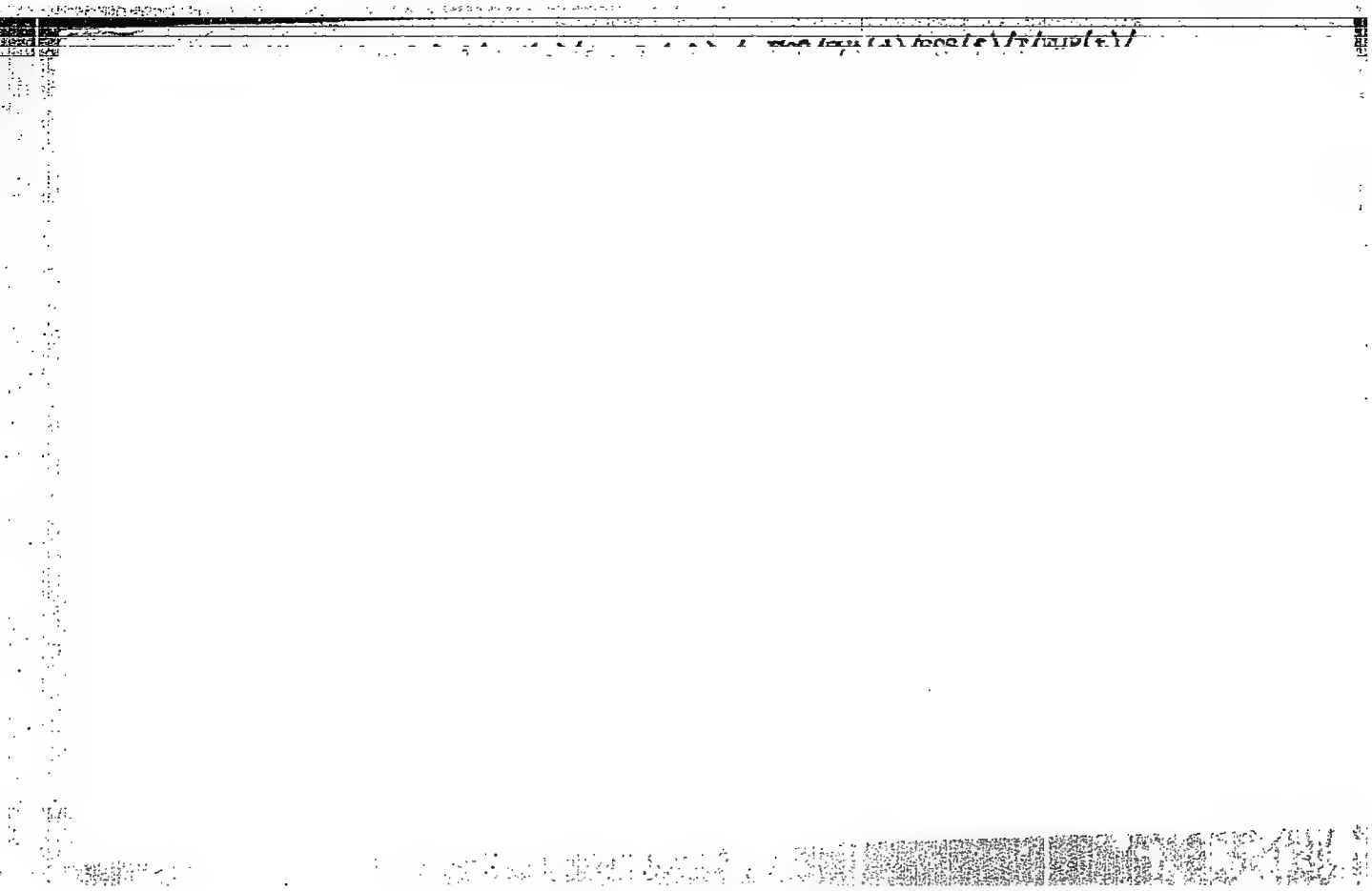
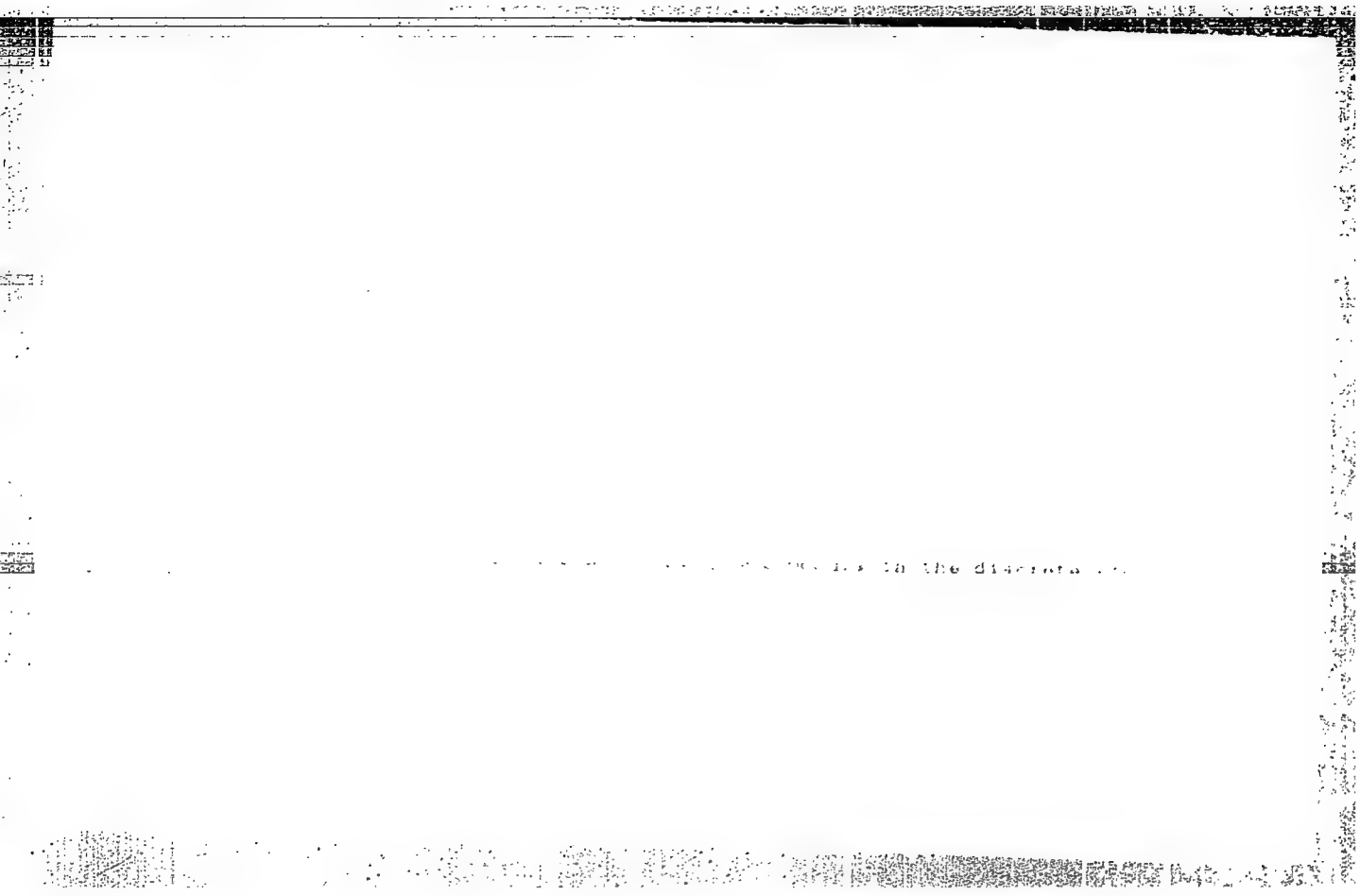
ASSOCIATION: None

TELESNIN, R.V.; KOZLOV, V.I.

Local study of thin ferromagnetic films by the ferromagnetic resonance method. Izv. AN SSSR. Ser. fiz. 29 no.4:568-570 Ap '65. (MIRA 18:5)





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GRABOVSKIY, Mikhail Aleksandrovich, dots.; MLODZEYEVSKIY, Anatoliy Boleslavovich, prof.; TELESHIN, Roman Vladimirovich, prof.; SHASKOL'SKAYA, Marianna Petrovna, dots.; YAKOVLEV, Ivan Alekseyevich, prof.; IVERONOVA, V.I., red.; CHERNOTAREVA, A.V., red.

[Lecture demonstrations in physics] Lektsionnye demonstratsii po fizike. Moskva, Nauka, 1965. 572 p.
(MIRA 18:9)

1. Institut stali i splavov, Moskva (for Shaskol'skaya).

L 15422-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(z)/EWP(b) LJP(c) JD/HW/GG

ACC NR: AP6004479 SOURCE CODE: UR/0048/66/030/001/0095/0098

AUTHOR: Telesnin,R.V.; Sarayeva,I.M.; Rybak, Ye.N.; Shishkov,A.G.

ORG: Physics Department, Moscow State University im. M.V.Lomonosov (Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: On the contributions of different factors to the induced anisotropy of thin iron-nickel films /Transactions of the Second All-Union Symposium on the Physics of Thin Ferromagnetic Films held at Irkutsk 10 July to 15 July, 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.30, no.1, 1966, 95-98

TOPIC TAGS: ferromagnetic film, magnetic thin film, iron, nickel, permalloy, magnetic anisotropy, magnetostriction, ordered alloy,

ABSTRACT: The purpose of the work was to determine the relative contributions of directed ordering of pairs of ferromagnetic atoms and unrelaxed magnetostrictive stresses to the induced magnetic anisotropy of thin iron-nickel films. Iron-nickel films of different composition were deposited at 2×10^{-5} mm Hg in a 500 Oe magnetic field at the rate of 400 Å/min onto optically polished glass substrates heated by radiation to different temperatures. The films were annealed in a magnetic field, and their magnetic anisotropy constants at different temperatures were measured with a torsion magnetometer, all without breaking the vacuum. For most of the films the anisotropy constant decreased with increasing temperature, although in some cases an

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L 15422-66

ACC NR: AP6004479

increase in anisotropy with increasing temperature was observed at temperatures above the deposition temperature. The anisotropy constant at fixed measuring temperature (19°) was plotted against the deposition temperature and was compared with the theoretical anisotropy due to magnetostrictive stresses calculated with the theory of F.G.West (J.Appl.Phys.,35,18 (1964)). Except for the films deposited at room temperatures, the theoretical and experimental anisotropy constants for the nickel films were in good agreement. The anisotropy constants of the alloy films were greater than predicted by the magnetostriction theory. The excess anisotropies were compared with the calculations of M.Prutton and E.M.Bradley (Proc. Phys.Soc., 75, No.4, 484.577 (1960)) based on the Neel-Taniguchi theory of directed ordering of pairs of iron atoms in the face-centered cubic Ni-Fe lattice. According to this theory, the anisotropy constant should be proportional to the square of the iron concentration in the alloy. Such a dependence of the residual anisotropy constant on the iron concentration was observed; the experimental parabola corresponded to a coupling constant of 2.3×10^{-16} erg.which is within the limits set by T.H.Van Vleck (Phys.Rev., 52, 1178 (1937)). It is concluded that the anisotropy of nickel films is due mainly to magnetostrictive stresses that cannot relax because of the adhesion of the film to the substrate, and that both magnetistrictive stresses and directed ordering of iron atom pairs contribute to the magnetic anisotropy of iron-nickel alloy films. Orig. art. has: 2 formulas and 6 figures.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 000 OTH REF: 003

Card 2/2

L 19[illegible]-66 EWT(l)/EWP(e)/EWT(m)/T/EWP(t)/EWP(b) LJP(c) JD/GG

ACC NR: AM5004481 UR/0048/66/030/001/0103/0107

AUTHOR: Telesnin,R.V.; Il'icheva,Ye.N.; Kolotov,I.S.

ORG: Physics Department, Moscow State University im. M.V.Lomonosov (Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: Investigation of pulse switching processes in thin films by a magneto-optical technique [Transactions of the Second All-Union Symposium on the Physics of Thin Ferromagnetic films held at Irkutsk 10 July to 15 July, 1964]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 1, 1966, 103-107

TOPIC TAGS: ferromagnetic film, magnetic thin film, Kerr effect, magnetic domain structure, magnetization, pulsed magnetic field.

ABSTRACT: The switching process in two 1990 Å films of undisclosed composition and having anisotropy fields of 3.9 and 3.5 Oe was investigated by observing with the aid of the Kerr effect the domain structures left after partial switching with pulses of duration from 20 to 800 nanosec and amplitude up to 23 Oe. The film was mounted at the center of a cube of Helmholtz coils and was oriented with its easy axis in a specified direction by observing the behavior of the magnetization when a strong transverse field was switched off, or by noting the absence of a transverse hysteresis loop. The magnetic field of the switching pulse could be directed at a given angle to the easy axis to within a fraction of a degree. The switching time is defined as the duration of the pulse that leaves the film 90% switched. The switching time along

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the easy axis in the presence of transverse fields up to 0.4 Oe was compared as a function of the switching field with analogous switching times measured by conventional techniques by O.C.Kolotov and V.A.Pogozhev (Izv. AN SSSR. Ser. fiz., 29, No. 5, 1 0965)). The switching times measured with the present technique were some 20% longer than the conventionally measured switching times. The switching coefficient was 0.38 Oe μ sec and the threshold field obtained by extrapolation of the linear portion of the plot of inverse switching time against switching field was 5 Oe. The inverse switching time versus switching field curves for small inclinations of the switching field to the easy axis were straight lines when the switching field exceeded twice the anisotropy field and were curved in the region of lower switching fields. There was no marked difference between the domain structures left by low and high switching fields. When the inclination of the switching field to the easy axis exceeded the dispersion angle the switching coefficient dropped rapidly to 0.05-0.03 Oe μ sec and the switching times became so short that the domain structures in intermediate stages could be observed only with low switching fields. In a film switched at 60° to the easy axis there were observed short narrow domains extended along the easy axis, which were grouped into bands that were inclined at approximately 30° to the easy axis. This inclination corresponds to that of the band domains observed by S.Middelhoek (I.B.M. J. Res. and Develop., 6, 394 (1962)) in quasistatic partial magnetization rotation. Curves of constant switching time were constructed. These curves differed considerably from astroids, but their approximate shape could be derived from an astroid by taking into

ACC NR: AP6004481

account the anisotropy dispersion. The authors thank O.S.Kolotov and V.A.Pogozhev for assistance in comparing the two methods for determining the switching time. Orig. art. has: 4 figures.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 003 OTH.REF: 001

Card 3/3

EWT(m)/EWP(e)/EWA(d)/EWP(t)/EWP(z)/EWP(b) MJW/JD

ACC NR: AP6004482 UR/0048/66/030/001/0108/0111

AUTHOR: Telesnin,R.V.; Kolotov,O.S.; Nikitina,T.N.; Pogozhev,V.A.

ORG: Physics Department, Moscow State University im. M.V.Lomonosov (Fizichoskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: Investigation of nonuniform rotation processes in thin Permalloy films /Transactions of the Second All-Union Symposium on the Physics of Thin Ferromagnetic Films held at Irkutsk 10 July to 15 July, 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 1, 1966, 108-111

TOPIC TAGS: ferromagnetic film, magnetic thin film, permalloy, magnetic domain structure, magnetic coercive force, magnetic anisotropy, pulsed magnetic field

ABSTRACT: The anisotropy and threshold fields of a number of 79NiA Permalloy films of thickness from 470 to 2800 Å were measured and are compared. The threshold fields were obtained by extrapolation of the linear portion of the curve giving the inverse switching time along the easy axis as a function of the switching field, and the anisotropy fields were determined from hysteresis loops or with a ferromagnetic resonance apparatus. The investigated films fell into two catagories: those which were left with a fine domain structure when a strong field along the hard axis was suddenly removed, and those which, under the same conditions broke up into a few large domains. The threshold fields of the films with the fine domain structure were considerably

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ACC NR: AP6004482

1 4

stronger than the anisotropy fields; the threshold and anisotropy fields of the films with coarse domain structure were approximately equal. It is concluded that the increase in the threshold field in the films with fine domain structure is due to magnetostatic interactions. In order to observe the decay of magnetization following sudden removal of a saturating field along the hard axis the films were subjected to two successive magnetizing pulses with an adjustable delay between them, the increase of the longitudinal flux in the film on the rise of the second pulse was recorded. This flux increase divided by the saturation flux is the relative amount by which the magnetization has decreased during the delay between the pulses. The demagnetization was found to take place in three stages: a rapid initial stage, and intermediate stage lasting for 100 to 500 nanosec, and a slow stage lasting for several hundred μ sec. In the films with coarse domain structure the process was essentially completed in the intermediate stage. In the films with fine domain structure only 1-2% of the magnetization was lost in the initial rapid stage and the slow stage was well developed. Possible reasons for this behavior are discussed. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20 SUBM DATE: 00 ORIG REF: 004 OTH REF: 006

TS

Card 2/2

L 15111-66 EWT(l)/EWP(e)/EWT(m)/T/EWP(t)/EWP(b) LJP(c) JD/GG

ACC NR: AP6004484 SOURCE CODE: UR/0048/66/030/001/0116/0119

AUTHOR: Telesnin, R.V.; Kozlov, V.I.

ORG: Physics Department, Moscow State University im. M.V.Lomonosov (Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: Quasistatic switching of thin ferromagnetic films under the action of microwave frequency fields /Transactions of the Second All-Union Symposium on the Physics of Thin Ferromagnetic Films held at Irkutsk 10 July to 15 July, 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.30, no. 1, 1966, 116-119

TOPIC TAGS: ferromagnetic film, magnetic thin film, magnetic coercive force, magnetic anisotropy, superhigh frequency, ferromagnetic resonance, medium frequency,

ABSTRACT: With a ferromagnetic resonance apparatus described elsewhere by the authors (Izv.AH SSSR.Ser.fiz.,29, No.4, 568 (1965)) the 9.4 kMHz microwave absorption of thin ferromagnetic films of undisclosed composition has been investigated with the quasistatic magnetic field in the plane of the film and modulated at 1 MHz with an amplitude of 0.05 Oe. An automatic frequency control system kept the microwave oscillator tuned to the resonant frequency of the cavity, so that the phase sensitive detector responded only to the imaginary part of the susceptibility. In addition to the usual spin wave resonance, which occurred at 80 Oe in a 510 A film, there was observed absorption at very low values of the magnetic field. When the magnetic field was directed along the hard axis there was observed a single absorption peak at zero field

Card 1/2

L 15417-66
ACC NR: AP6004484

with a half-width roughly twice the coercive force of the film at least in the one case for which the oscillogram is shown; the data obtained with the field parallel to the hard axis are not discussed in detail). When the magnetic field was directed along the easy axis the oscillogram obtained with a phase sensitive detector that responded to the derivative of the absorption was reminiscent of a nearly square hysteresis loop: the signal gradually rose as zero field was approached and rather suddenly changed sign at a negative field equal to the coercive force of the film. The equivalence of the field at which the absorption signal changed sign to the coercive force of the film is illustrated by a tabular comparison of the coercive forces, measured with a magneto-optical technique and by the present method, of 12 films of thickness from 230 to 3100 Å and having coercive forces from 3.5 to 1.0 Oe. When the direction of the quasistatic field was altered by 90° so that it became perpendicular both to the microwave magnetic field in the resonator and to the 1 MHz modulation field, the signals became very similar to those observed by A.G.Lesnik and G.I.Levin (Izn. AN SSSR. Ser. fiz., 29 No.4, 560 (1965)) and T.E.Hasty and L.J.Boudreaux (J.Appl. Phys., 32, No. 10,1807 (1966)). In this case when the field was parallel to the hard axis the peaks on the oscillogram occurred at fields very nearly equal to the anisotropy field of the film. It is suggested that the possibility of observing low frequency resonances by a microwave technique may be due to a coupling between the low frequency and high frequency parameters of the sample. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 004 OTH REF: 001

Card 2/2

L 43630-66 EWP(t)/ETI IJP(c) JD

ACC NR: AP6012808 SOURCE CODE: GE/0030/66/014/002/K101/K105

50
B

AUTHOR: Telesnin, R. V.; Kozlov, V. I.

ORG: Faculty of Physics, Lomonosov State University, Moscow

TITLE: Spin wave resonance in thin permalloy films

SOURCE: Physica status solidi, v. 14, no. 2, 1966, K101-K105 and appropriate insert following page 529

TOPIC TAGS: spin resonance, ferromagnetic resonance, magnetic thin film, permalloy

ABSTRACT: The spin wave spectra of films 180-3180 Å thick were measured for the case of parallel orientation of a 9400 Mc magnetic field modulated at a frequency of 1 Mc. Earlier experiments had dealt with thicker films. Oscillograms showing the resonance peaks for films of 6 different thicknesses are shown. The distances of additional peaks from the main peaks is graphed as a function of thickness. The position of the peaks has a near quadratic variation at thicknesses of 1700 Å but changes to a straight line variation for thicker films. Possible interpretations of the results are suggested. Orig. art. has: 5 figures.

SUB CODE: 20/ SUBM DATE: 17Jan66/ ORIG REF: 002/ OTH REF: 003

Card 1/1

L 32777-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6012797 SOURCE CODE: GE/0030/66/014/002/0363/0370

AUTHOR: Telesnin, R. V.; Ilicheva, E. N.; Kanavina, N. G.; Shishkov, A. G.

ORG: Faculty of Physics, University of Moscow

TITLE: Domain wall creep rate in thin permalloy films [Contribution to the International Colloquium on Magnetic Thin Films held from 25 to 28 April 1966 in Jena]

SOURCE: Physica status solidi, v. 14, no. 2, 1966, 363-370

TOPIC TAGS: permalloy, metal film, creep, magnetic field

ABSTRACT: An analysis of the experimental dependence of the domain wall creep rate (V) on the intensity of magnetic fields in the "easy" (H_L) and "hard" (H_T) directions gives a characteristic exponential dependence of V on H_L with H_T constant. The parameters of the exponential $V(H_L)$ for films of different thickness are presented, and it is shown that one of the parameters should be the critical start field of the wall, $H_{w.st.}$, rather than the coercivity, H_c. It is shown that creep parameters vary when the sinusoidal bipolar alternating field along the "hard" axis is replaced by a unipolar magnetic field. Orig. art.

Card 1/2

L 32777-66

ACC NR: AP6012797

has: 6 figures and 4 formulas. [Author's abstract] [KS]

SUB CODE: 20/ SUBM DATE: 17Jan66/ ORIG REF: 003/ SOV REF: 001/
OTH REF: 007

Card 2/2 JS

L 32778-66 EWP(k)/EWP(e)/EWP(t)/ETI ACC NR: AP6012798 SOURCE CODE: GE/0030/66/014/002/0371/0380

AUTHOR: Telesnin, R. V.; Ilicheva, E. N.; Kolotov, O. S.; Nikitina, T. N.; Pogozhev, V. A.

ORG: Faculty of Physics, University of Moscow

TITLE: Experimental investigation of some features of incoherent rotation in thin permalloy films [Contribution to the International Colloquium on Magnetic Thin Films held from 25 to 28 April 1966 in Jena]

SOURCE: Physica status solidi, v. 14, no. 2, 1966, 371-380

TOPIC TAGS: permalloy, metal film, incoherent rotation, magnetic domain structure, magnetic thin film

ABSTRACT: Some features of the mechanism of nonhomogenuous rotation in thin permalloy films reversed by pulse fields are investigated: switching coefficient, threshold fields, and parameters of transition to fast magnetic reversal. The behavior of the films is also investigated for fields applied along the "hard" axis. The results are compared with the static parameters of thin films: anisotropy field,

Card 1/2

L 32778-66
ACC NR: AP6012798

angular dispersion, and domain structure. Orig. art. has: 12 figures and 1 table. [Author's abstract] [KS]

SUB CODE: 20/ SUBM DATE: 18Jan66/ ORIG REF: 009/ SOV REF: 004/ OTH REF: 008/

Card 2/2 JS

L 38532-66 EWT(l)/EWT(m)/T/EWP(t)/ETI LJP(c) JD/GG/GD

ACC NR: AP6007362 SOURCE CODE: UR/0126/66/021/002/0316/0317

AUTHORS: Telesnin, R. V.; Kolotov, O. S.; Pogozhev, V. A. 73 B

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosuniversitet)

TITLE: Magnetic reversal of thin permalloy films at small angles with respect to the axis of easy magnetization

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 2, 1966, 316-317

TOPIC TAGS: magnetic thin film, transverse magnetic field, magnetic property, magnetic field measurement, magnetic anisotropy, permalloy/79NM permalloy

ABSTRACT: The effect of the angle α between the permalloy film and the axis of easy magnetization on the angular dispersion of anisotropy has been studied on a film obtained by thermal plating with 79NM permalloy. The parameters of the film were: anisotropic field H_k = 2.8 oe, α_{max} = 12 ± 2°. The results are summarized in Fig. 1 and are compared with those produced when transverse field $H_\perp$ is the variable. The latter, which is also presented, was discussed in a previous work by R. V. Telesnin, O. S. Kolotov, and V. A. Pogozhev (Izv. AN SSSR, ser. fiz., 1965, 29, No. 4, 546). It was established that the two variables (the inclination angle and the transverse field) are analogous in their effects in that during magnetic reversal the conversion of multidirectional to unidirectional rotation occurs following the same rules for

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Card 1/2

L 36532-66

ACC NR: AP6027348

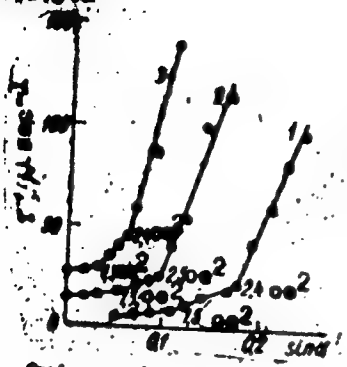

Fig. 1. Reciprocal of magnetic reversal time as function of the sines of angle α for different values of H_m: 1 - 4.8; 2 - 10; 3 - 15 oe.

both cases. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 27May65/ ORIG REF: 004

Card 2/2 SW

L 38533-66 EWT(l)/EWT(m)/T/EWP(t)/ETI IJP(c) GG/JD

ACC NR: AP6007363 SOURCE CODE: UR/0126/66/021/002/0317/0318

AUTHORS: Telesnin, R. V.; Kozlov, V. I.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosuniversitet)

TITLE: Determination of the coercive force of thin magnetic films having reversed magnetism by treatment with a UHF field

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 2, 1966, 317-318

TOPIC TAGS: magnetic thin film, permalloy, ferromagnetic film, UHF, magnetic modulation, magnetic anisotropy

ABSTRACT: Magnetic reversal taking place upon treatment with a UHF field has been investigated in a series of thin films of permalloy. The study was performed on an apparatus designed for the observation of ferromagnetic resonance in films at the frequency of 9400 Mhz. The application of high frequency modulation of the magnetic field was previously described by R. V. Telesnin and V. I. Kozlov (Izv. AN SSSR, ser. fiz., 1965, 29, No. 4, 568). Oscillograms obtained indicate the dependence of the shape of the curves on the rotation of the film with respect to the magnetic field. The magnitude of the field resulting in the change of sign of the derived absorption curve conforms to the values for coercive force as measured on these films by magneto-optical methods. In some cases the transition is stepwise,

UDC: 539.216.2:538.248

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L 58533-66

ACC NR: AP6007363

permitting evaluation of the magnetic reversal process in greater detail. The authors express their gratitude to Ye. N. Il'icheva for magneto-optic measurements of coercive force. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 15May65/ ORIG REF: 003/ OTH REF: 001

Card 2/2

06342
SOV/141-2-1-14/19

AUTHORS: Ivanov, A.F. and Telesnin, V.R.

TITLE: The Passage of a Pulse-pair Through a Chain and a Ring of Driven Multi-vibrators

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 1, pp 125 - 129 (USSR)

ABSTRACT: The biased multi-vibrator with a positive grid, as described in the work of L.A. Meyerovich and L.G. Zelichenko (Ref 1) and Figure 1, produces a single, rectangular output pulse when triggered. The duration of the pulse is τ_1, given on p 125. The threshold of operation, i.e. the minimum pulse-amplitude necessary for triggering, generally speaking, is a function of time since the circuit may be partially paralysed by a previous pulse. The recovery of a triggered multi-vibrator is experimentally examined by the application of pairs of pulses, the interval between which is variable. The interval τ_{12} varies between 100 and 1 000 μsec and the pulse amplitude U from 0 to 20 V. The repetition period T is much greater than τ_{12}. The circuit behaviour was examined using an

Card1/3

The Passage of a Pulse-pair Through a Chain and a Ring of Driven Multi-vibrators

oscilloscope and the amplitude necessary for second-triggering noted for various values of τ_{12} . A typical result is Figure 2. This characteristic enables the behaviour of a chain of triggered multi-vibrators to be predicted graphically as in Figure 3, where the triggering conditions for successive stages are shown. The interval between the pulses increases at each stage. Figures 4a and 4b show the behaviour of a multivibrator connected over a delay-line of delay T . The inter-pulse spacing increases with time until it reaches T/2 , independent of the original spacing. The time taken by the loop to settle down is longer than for a "ring-of-two" multivibrator.

Thanks are extended to K.F. Teodorchik, M.D. Karasev, M.L. Tsetlin.

There are 4 figures and 2 Soviet references.

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SOV/141-2-1-14/19

The Passage of a Pulse-pair Through a Chain and a Ring of Driven Multi-vibrators

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 12, 1958

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00556

S/141/59/002/05/020/026
E310/E382

16.6800

AUTHOR: Telesnin, V.R.

TITLE: Magnetic Matrices for Information Processing

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 5, pp 818 - 826 (USSR)

ABSTRACT: The author proposes the use of a computing system with ferrite-core matrices not only for storage, but also for the processing of information, for the performance of logical functions and for arithmetical operations. The magnetic matrix is shown schematically in Figure 1. The experimental model has 18 rows and 16 columns. Sixteen rows have 3 x 2 x 1.5 mm toroidal cores made of K-28 ferrite and having a rated current of I_o = 1 A . Two special rows have 1 x 0.5 x 0.5 mm cores made of K-272 ferrite; their current is i_o = 200 mA. The number of associated devices is minimized by the introduction of a special bar Z passing through all the cores of the matrix except those on the two special lines. The bar records the 0 code in all cores of a certain row (erasing the row). Numbers I-IV in Figure 1 are triggered

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S/141/59/002/05/020/026
E310/E382

Magnetic Matrices for Information Processing

multivibrators producing positive pulses (timing pulses), 2 μs in width. Numbers 1-19 are the shaping circuits of the horizontals, which have two inputs and produce either a positive or a negative output pulse according to the application of a timing pulse to either the first or the second input of the shaping circuit. Numbers V-XX are the shaping circuits of the verticals, which are also triggered multivibrators with a 1 - 1.3 V operating threshold. A circuit diagram of the multivibrator is shown in Figure 2. The article contains a detailed description of the operating principle of the proposed system, which is expected to find application in medium-sized digital computers, especially in computer punchers. There are 4 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: April 26, 1959

Card 2/2

4

TELESNIN, V.R.

Use of nonlinear oscillatory circuits in designing pulse systems.
Izv. vys. ucheb. zav.; radiofiz. 4 no.4:779-782 '61. (MIRA 14:11)

1. Otdeleniye prikladnoy matematiki matematicheskogo instituta imeni V.A. Steklova AN SSSR.
(Electronic circuits) (Pulse techniques (Electronics))

L [illegible]
ACCESSION NR: AP3004849 S/0141/63/006/003/0624/0628

AUTHOR: Telegnin, V. R.

TITLE: Propagation of excitation in a one-dimensional excitable tissue

SOURCE: IVUZ. Radiofizika, v. 6, no. 3, 1963, 624-628

TOPIC TAGS: tissue, excitable tissue

ABSTRACT. A mathematical description is submitted of propagation of excitation in a ring made from homogeneous excitable tissue, for the case of non-monotonous dependence of the propagation velocity on the phases of points within the tissue. Two pulses circulating in the (long and short) ring are considered with various pulse placements. Orig. art. has: 3 figures and 14 formulas.

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova AN SSSR (Mathematical Institute, AN SSSR)

SUBMITTED: [illegible] ENCL: 00
SUB CODE: PH OTHER: 00
Card 1/1

"SHISHKIN, V.P.

Propagation of excitation in one-dimensional structures. Izv. vys. ucheb.zav.; radiofiz. 8 no.1:169-170 '65.

(MIRA 18:5)

1. Matematicheskiy institut im. V.A.Steklova AN SSSR.

L 2131-66

ACC NR: AP5026714 SOURCE CODE: UR/0141/65/008/005/0977/0981

AUTHOR: Telesnin, V. R.

ORG: Mathematics Institute im. V. A. Steklov, AN SSSR (Matematicheskiy institut AN SSSR) 35 B

TITLE: Establishment of a stationary regime for the propagation of a pulse along a ring of excitable tissue

SOURCE: IVUZ. Radiofizika, v. 8, no. 5, 1965, 977-981

TOPIC TAGS: pulse propagation, tissue

ABSTRACT: An analytical study is made of the processes which take place in setting up a stationary regime for the propagation of a single pulse in a ring of a homogeneous excitable tissue. The existence of a stable stationary regime is proved for the case of nonmonotonic dependence of the excitation velocity on the phase of the medium. Orig. art. has: 2 figures and 4 formulas. [YK]

SUB CODE: MA, EC / SUBM DATE: 08Mar65/ ORIG REF: 005/ OTH REF: 005/

ATD PRESS: 4123

Card 1/1

UDC: 53:51

TELESNIN, Ye.F.

24(3)

Author: D'yakov, G.P., Candidate of Physical-Mathematical Sciences SOV/55-58-2-34/35

TITLE: Survey of Papers Read by Scientists of Moscow University at the All-Union Congress on the Physics of Magnetic Materials (Obzor dokladov uchenykh Moskovskogo universiteta na vsesoyuznom soveshchanii po fizike magnitnykh materialov)

PERIODICAL: Vestnik Moskovskogo Universiteta.Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 2,pp 247-250 (USSR)

ABSTRACT: From December 6 - 11,1957 there took place the fourth Union Congress on physics of magnetic materials in Leningrad. (The first two meetings took place 1946 and 1951 in Sverdlovsk, the third meeting 1956 in Moscow). The congress was organized by : Academy of Sciences of the USSR, Department of Physical-Mathematical Sciences, Scientific Council on Fundamental Problems of Magnetism, Institute for Semiconductors of the Academy of Sciences, USSR and Committee for Magnetism. There were more than 300 participators, 59 lectures were given, among them the following lectures of the representatives of the Moscow State University :

1. Professor R.V. Telesnin, Ye.F. Kuritsyna, Lecturer "On the

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Velocity of Magnetic Reversal of the Ferromagnetica".

2. Professor R.V. Telesnin, Ye.V. Karchagina, Assistant "On Magnetic Viscosity of Ferrites".
3. Professor R.V. Telesnin, A.G. Shishkov, Aspirant "Effect of Magnetic Viscosity on the Frequency Characteristics of Ferrites".
4. M.V. Degtyar, Lecturer "Variations of Structure and Antiferromagnetic Properties of Ni_3Fe".
5. M.A. Grabovskiy, Lecturer, S.Yu. Brodskaya, Junior Scientific Assistant "Magnetic Properties of Anisotropic Stones".
6. G.P. D'yakov, Lecturer "Magnetostriction Properties of Binary Alloys".
7. Professor Ye.I. Kondorskiy, L.V. Sobolev, Assistant "Electric Properties of Ni-Zn-Ferrites".
8. N.Z. Miryasov, Senior Scientific Assistant, A.P. Parsanov, Aspirant "Magnetic Properties and Structure of Manganese - Boron - Alloys".
9. N.A. Smol'kov, Senior Scientific Assistant, B.F. Belov "Some Properties of Ferrites".

Survey of Papers Read by Scientists of Moscow University at the All-Union Congress on the Physics of Magnetic Materials SOV/55-58-2-34/35

10. N.A. Smol'kov, Senior Scientific Assistant, Yu.P.Simanov, Lecturer "Properties of $Ni Fe_2 O_4$ - $Mg Fe_2 O_4$ ".
11. N.A. Smol'kov and Ye.I. Fomenko, Engineer "Properties of Ferrites in the High-Frequency Range".
12. Professor K.P. Belov, K.M. Bol'shova, Lecturer, T.A. Yelkina, Lecturer, and M.A. Zaytseva, Junior Scientific Assistant "Ferrites With Compensation Point".
13. K.P. Belov, Ye.V. Talalayeva, Assistant "Electric and Galvanomagnetic Properties of the Manganese Ferrites".
14. V.A. Timofeyeva, Junior Scientific Assistant, A.V. Zalesskiy "Production of Monocrystals of Ferrites".
15. Professor K.P. Belov, A.V. Ped'ko, Junior Scientific Assistant "On Galvanomagnetic Properties of Ferromagnetic Alloys Near the Absolute Zero of Temperature".

The participators of the meeting visited a laboratory of the Institute of Semiconductors of the Academy of Sciences of the USSR (Professor G.A. Smolenskiy).

The meeting was concluded by Professor S.V. Vonsovskiy, Corresponding Member, Academy of Sciences, USSR with the

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indication to the following Union Congress planned for 1958.

1. Magnetic Resonance and Galvanomagnetic Effects in Kazan'.
2. Ferromagnetic Semiconductors (Ferrites) - in Minsk.
3. Blast-Furnace Structure of the Ferromagnetica and Barkhausen Effects - in Krasnoyarsk.

FEDOSEYEVA, N.V.; TELESNINA, T.R.; SILAYEV, A.B.

Chemistry of polymyxin M. Part 7: Synthesis of peptides of L-α, γ-diaminobutyric acid. Zhur. ob. khim. 33 no.8:2760-2764 Ag '63. (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

ANTONOV, V.K.; AGADZHANYAN, TS.Ye.; TELESNINA, T.R.; SHEMYAKIN, M.M.

Activation of an amide group by activation. Part 5: Inclusion of amino acid radicals into linear and cyclic peptides. Zhur. ob.khim. 35 no.12:2231-2238 D '65. (MIRA 19:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted December 23, 1964.

TRUSOV, V.F.; TELESNITSKIY, B.A.

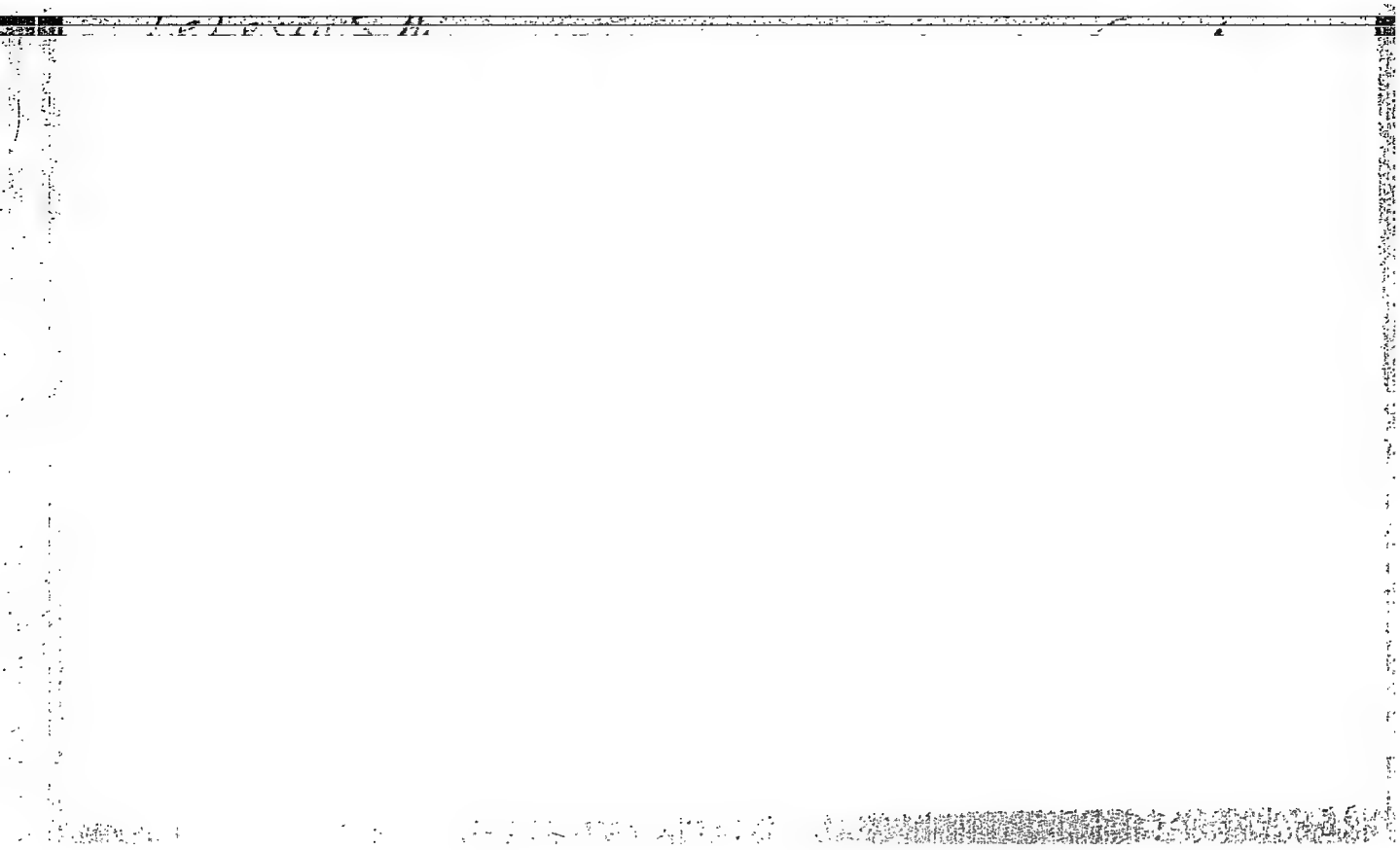
Mechanizing the feeding of raw materials into beaters. Leg. prom. 18 no.8:41 Ag '58. (MIRA 11:9)
(Leather substitutes)

TELESOV, S. A.

Telesov, S. A., Troskunov, Ya. L. and Gfengenden, A. L. "The problem of the reduction in the heterogeneity of the boiling steel," Trudy Stalinskogo obl. otd-niya VNITOM, No 1, 1949, p. 34-39

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey , No. 26, 1949)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755210014-5"



SOV/137-58-8-16499

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 38(USSR)

AUTHORS: Belov, I.V., Telesov, S.A.

TITLE: Operation of Open-hearth Furnaces in Conjunction With Cold Air Being Blown Into the Gas Uptake (Rabota martenovskikh pechey pri vduvanii kholodnogo vozdukha v gazovyy kesson)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 269-276

ABSTRACT: A presentation of operational performance indices and data of a thermal investigation performed on furnaces of the KMK, ChMZ, MMK, and of the im. Voroshilov plant. It is noted that introduction of cold air into the gas uptakes resulted in a 3 to 6% reduction in smelting time and a more stable operation of the furnaces throughout an entire campaign. The specific fuel consumption remained unchanged in most furnaces and even diminished occasionally. The KMK and the MMK reported improvements in the service life of refractories. Investigations which dealt with processes of combustion and heat exchange in the hearth are described. An increase in CO_2 content, noted in gases of the hearth, resulted in more intense

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Operation of Open-hearth Furnaces (cont.)

heating of the surface of the molten metal by radiation. The relative increase in thermal flow to the hearth, achieved in connection with the blowing of air into the uptakes amounts to 2-7%. The most expedient system utilizes air from blast-furnace turbo-blowers with an excess air pressure of 1-2 atm in front of the nozzle at a consumption of compressed air amounting to 1300-1400 nm^3/hr, the total air consumption through the uptake being 5000 nm^3/hr. Diagrams of ejectors being employed at plants indicated are shown.

M.Kh.

1. Open hearth furnaces--Operation 2. Open hearth furnaces--Performance
3. Air--Thermal effects 3. Compressed air--Consumption

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SOV/137-58-11-22137

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 44 (USSR)

AUTHORS: Yavoyskiy, V. I., Chernega, D. F., Telesov, S. A., Troskunov, Ya. L., Ofengenden, A. M., Bekker, N. I.

TITLE: D-C Degassing of Steel in Ladles and Molds (Degazatsiya stali v kovshakh i izlozhnitsakh pri pomoshchi postoyannogo elektricheskogo toka)

PERIODICAL: Sb. Mosk. in-t stali, 1958, Vol 38, pp 209-225

ABSTRACT: Carbon and low-alloy steels (65G, 55S2, 10G2A, Nr 45, and others) were the objects of investigation. In degassing in molds, either the graphite nozzle or the stool serves as anode, while a graphite electrode immersed in the mold serves as cathode. Current is transmitted for 10-30 min, usually immediately after the ingot is poured. The ingots are 3.1-3.4 t in weight. Samples of the metal (Me) for H determination by the Batalin method are taken from the test ingot and the next one adjacent thereto (the control ingot). Seven ingots were treated in this manner. Increase in current density from 0.06 to 0.17 amps/cm^2 raises the [H] in the top of the test ingot to more than in the control ingot. The difference in [H] attains 15.84

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D-C Degassing of Steel in Ladles and Molds

cm^3/100 g. Samples of Me taken from rolled ingots (100-160 mm diam) testify to positive segregation of H, a uniform distribution of [N], and some improvement in macrostructure. When Me is degassed in 125-t ladles, the current is delivered through carbon coils mounted on dummy stoppers. The current, of 0.02-0.25 amps/cm^2 density, is transmitted either while the metal is in the ladle or then and, in addition, when it is poured. 12 heats were run. Samples of Me were taken during pouring from the molds. In the experimental heats, the [H] in the ladle was reduced relative to the [H] before tapping by 1.5-2 cm^3/100 g and was 0.5-1.0 cm^3/100 g lower than in ordinary heats. The Me treatment thus described does not affect the content and distribution of N, O, or nonmetallic inclusions.

A. S.

Card 2/2

Telesov, S.A.

69-10-22/36

AUTHORS: Osipov, A.I., Shvartsman, V.A., Alekseyev, V.I., Burov, V.F., Sazonov, M., Bulskiy, M.T., Telesov, S.A., Skrebtsov, A.M., Ofengenden, A.M., Gol'dshteyn, L.G., Sviridenko, F.F.

TITLE: The Use of Radio Isotopes when Investigating the Kinetics of Scrap Fusion and Slag Formation in the Scrap-Ore Process. (Primeeneniye radioaktivnykh isotopov dlya izucheniya kinetiki plavleniya skrapa i shlakoobrazovaniya pri skrap-rudnom protsesse)

PERIODICAL: Atomnaya Energiya, 1957, Vol. 3, Nr 10, pp. 352-355 (USSR)

ABSTRACT : 1) Investigation of the kinetics of scrap fusion.
The fusion velocity in the 130 and 350 ton open hearth furnaces is shown on the basis of the reduction of the specific activity of standard metal samples (400 g), which contain Co-60 with the help of 12 counting tubes of the MC-4 type.
FRom the dependence obtained between the molten scrap quantity and the time which as elapsed since introduction of the scrap, it follows that nearly 100% of the scrap is molten already after about 200 minutes.
2) Investigation of the kinetics of slag formation.
Ca), in which Ca-45 was included, was used for this investigation. The CaO is introduced into the liquid slag in closed metallic tubes and standard samples for measureing are taken out onll after a lapse of time of 30-35 minutes. As measurement for the velocity in which Ca dissolves in the slag, the relation.

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The Usee of Radio Isotopes When Investigating the Kinetics of Scrap 89-10-22/36

$\frac{dx}{dt} = K_{SCH} (loo - x)^{2/3}$ was experimentally confirmed

x here denotes the weight of the CaO already dissolved and K_{SCH} the proportionality coefficient for slag formation. There are 4 figures and 2 Slavic references.

SUBMITTED January 15, 1957
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Card 2/2

YAROYSKIY, V.I., prof., doktor tekhn. nauk; CHERNEGA, D.F., inzh.; TELESOV, S.A., inzh.; TROSKUNOV, Ya.L., inzh.; OFENGENDEN, A.M., inzh.; BEKKER, I.I., inzh.

Degasifying steel in ladles and molds by means of direct electric currents. Sbor. Inst. stali no.38:209-225 '58. (MIRA 11:8)
(Gases in metals) (Electric currents)

SOV/ 20-120-3-45/67

AUTHORS: Shvartsman, L. A., Osipov, A. I., Surov, V. F., Sazonov, M. L., Telesov, S. A., Ofengenden, A. M.

TITLE: On the Equilibrium of Sulfur Distribution Between Metal and Slag in Open-Hearth Furnaces (O ravnovesii raspredeleniya sery mezhdu metallom i shlakom v martenovskikh pechakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 3, pp.599-60' (USSR)

ABSTRACT: In the analysis of the desulfurization process in such furnaces a clearing up of the dependence of the equilibrium coefficient of the sulfur distribution on the slag composition and on temperature is primarily necessary. If this is known, that minimum limit-concentration of sulfur in the metal can be estimated, which can be reached at optimum kinetic conditions with the respective slag composition. The difference between the actually observed and the equilibrium coefficient of the sulfur distribution is apparently conditioned by the insufficient velocity of mass transfer in the system slag-metal. From a thermodynamical point of view the basicity

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